**Table 1-1. Discharge: American Canyon Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 1.30 | -- | -- | -- | -- |
| Nov-12 | 1.34 | 2.13 | 51.0 | 53.1 | 28.4 |
| Dec-12 | 2.58 | 3.12 | 97.5 | 101 | 33.2 |
| Jan-13 | 1.70 | 0.643 | 64.6 | 65.2 | 24.4 |
| Feb-13 | 1.54 | 1.40 | 53.2 | 54.6 | 24.4 |
| Mar-13 | 1.59 | 1.50 | 59.0 | 60.5 | 26.4 |
| Apr-13 | 1.69 | 2.05 | 45.7 | 47.7 | 19.2 |
| May-13 | 1.20 | -- | -- | -- | -- |
| Jun-13 | 1.20 | -- | -- | -- | -- |
| Jul-13 | 1.10 | -- | -- | -- | -- |
| Aug-13 | 1.25 | 1.56 | 109 | 111 | 47.4 |
| Sep-13 | 1.20 | -- | -- | -- | -- |
| Oct-13 | 1.30 | -- | -- | -- | -- |
| Nov-13 | 1.20 | 4.91 | 73.2 | 78.1 | 15.0 |
| Dec-13 | 1.41 | 5.12 | 80.5 | 85.6 | 30.9 |
| Jan-14 | 1.06 | 15.8 | 48.6 | 64.4 | 28.8 |
| Feb-14 | 1.46 | 5.06 | 66.4 | 71.5 | 20.3 |
| Mar-14 | 1.98 | 5.75 | 75.3 | 81.0 | 18.7 |
| Apr-14 | 1.97 | 5.58 | 97.5 | 103 | 22.3 |
| May-14 | 1.30 | -- | -- | -- | -- |
| Jun-14 | 1.20 | -- | -- | -- | -- |
| Jul-14 | 1.08 | 1.88 | 78.0 | 79.9 | 21.0 |
| Aug-14 | 1.15 | 1.91 | 85.5 | 87.4 | 1.60 |
| Sep-14 | 1.17 | 2.83 | 69.1 | 71.9 | 2.10 |
| Oct-14 | 1.22 | 1.89 | 85.9 | 87.8 | 26.3 |
| Nov-14 | 1.37 | 2.33 | 75.9 | 78.2 | 24.6 |
| Dec-14 | 2.63 | 7.36 | 48.4 | 55.8 | 24.2 |
| Jan-15 | 1.66 | 3.83 | 43.1 | 46.9 | 27.6 |
| Feb-15 | 1.85 | 7.13 | 32.4 | 39.5 | 30.6 |
| Mar-15 | 1.53 | 2.26 | 39.7 | 42.0 | 37.9 |
| Apr-15 | 1.45 | 3.89 | 25.6 | 29.5 | 27.4 |
| May-15 | 1.30 | 2.85 | 25.0 | 27.9 | 31.0 |
| Jun-15 | 1.23 | 4.04 | 29.5 | 33.5 | 28.1 |
| Jul-15 | 1.25 | 0.474 | 25.1 | 25.6 | 40.8 |
| Aug-15 | 0.879 | 0.333 | 16.6 | 17.0 | 17.0 |
| Sep-15 | 1.04 | 2.59 | 47.0 | 49.6 | 28.6 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 0.993 | 0.376 | 21.8 | 22.2 | 12.0 |
| Nov-15 | 1.19 | 0.451 | 28.4 | 28.9 | 30.7 |
| Dec-15 | 1.47 | 1.94 | 33.9 | 35.8 | 61.1 |
| Jan-16 | 1.83 | 7.63 | 34.7 | 42.3 | 58.3 |
| Feb-16 | 1.89 | 0.714 | 45.7 | 46.4 | 27.9 |
| Mar-16 | 3.15 | 1.19 | 76.2 | 77.4 | 35.7 |
| Apr-16 | 1.57 | 0.593 | 32.0 | 32.6 | 27.9 |
| May-16 | 1.21 | 0.458 | 0.916 | 1.37 | 15.1 |
| Jun-16 | 1.10 | 0.746 | 23.2 | 24.0 | 22.8 |
| Jul-16 | 0.989 | 0.462 | 39.3 | 39.7 | 20.3 |
| Aug-16 | 0.958 | 1.74 | 16.7 | 18.4 | 11.0 |
| Sep-16 | 0.927 | 2.22 | 14.9 | 17.1 | 7.85 |
| Oct-16 | 1.24 | 0.825 | 13.7 | 14.6 | 18.6 |
| Nov-16 | 1.46 | 0.438 | 28.5 | 28.9 | 21.0 |
| Dec-16 | 1.78 | 0.941 | 12.2 | 13.2 | 51.7 |
| Jan-17 | 3.29 | 1.59 | 39.8 | 41.4 | 22.3 |
| Feb-17 | 3.34 | 13.1 | 141 | 154 | 29.1 |
| Mar-17 | 2.31 | 0.938 | 49.7 | 50.6 | 22.5 |
| Apr-17 | 2.24 | 1.18 | 69.9 | 71.1 | 49.7 |
| May-17 | 1.33 | 3.57 | 34.5 | 38.1 | 15.5 |
| Jun-17 | 1.12 | 1.70 | 26.8 | 28.5 | 2.56 |
| Jul-17 | 1.01 | 2.45 | 22.4 | 24.9 | 11.9 |
| Aug-17 | 1.04 | 0.488 | 11.2 | 11.7 | 20.0 |
| Sep-17 | 1.11 | 0.484 | 19.9 | 20.3 | 22.8 |
| Oct-17 | 1.06 | 0.846 | 9.31 | 10.2 | 2.54 |
| Nov-17 | 1.46 | 1.94 | 24.7 | 26.6 | 16.0 |
| Dec-17 | 1.38 | 2.17 | 33.1 | 35.3 | 40.2 |
| Jan-18 | 1.75 | 18.6 | 84.5 | 103 | 68.4 |
| Feb-18 | 1.50 | 7.71 | 21.6 | 29.3 | 10.3 |
| Mar-18 | 2.06 | 6.59 | 17.8 | 24.4 | 20.4 |
| Apr-18 | 2.01 | 5.49 | 48.5 | 54.0 | 30.2 |
| May-18 | 1.27 | 2.68 | 33.1 | 35.8 | 21.9 |
| Jun-18 | 1.10 | 0.881 | 38.8 | 39.7 | 39.7 |
| Jul-18 | 0.993 | 0.324 | 20.4 | 20.7 | 13.3 |
| Aug-18 | 0.986 | 5.98 | 25.2 | 32.5 | 27.8 |
| Sep-18 | 1.11 | 4.76 | 25.8 | 30.5 | 21.4 |
| Oct-18 | 1.08 | 1.02 | 15.8 | 16.8 | 8.90 |

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| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 1.26 | 0.832 | 22.5 | 23.3 | 14.1 |
| Dec-18 | 1.54 | 5.85 | 40.3 | 46.2 | 36.3 |
| Jan-19 | 1.98 | 7.66 | 49.0 | 56.7 | 36.8 |
| Feb-19 | 2.93 | 7.35 | 38.9 | 46.2 | 33.6 |
| Mar-19 | 2.56 | 9.65 | 51.9 | 61.5 | 33.8 |
| Apr-19 | 1.75 | 7.42 | 43.0 | 50.4 | 36.4 |
| May-19 | 1.59 | 1.91 | 28.1 | 30.0 | 8.10 |
| Jun-19 | 1.24 | 3.13 | 40.1 | 43.3 | 17.2 |
| Jul-19 | 1.04 | 1.29 | 21.6 | 22.9 | 13.6 |
| Aug-19 | 1.03 | 2.31 | 21.9 | 24.2 | 20.0 |
| Sep-19 | 0.975 | 1.02 | 24.8 | 25.8 | 22.1 |
| Oct-19 | 1.02 | 0.442 | 44.2 | 44.6 | 29.6 |
| Nov-19 | 1.23 | 0.425 | 46.8 | 47.2 | 27.2 |
| Dec-19 | 1.73 | 2.11 | 60.5 | 62.6 | 45.0 |
| Jan-20 | 1.64 | 3.16 | 40.4 | 43.6 | 34.7 |
| Feb-20 | 1.48 | 1.20 | 37.8 | 39.0 | 28.8 |
| Mar-20 | 1.41 | 2.40 | 29.4 | 31.8 | 21.6 |
| Apr-20 | 1.35 | 1.27 | 29.8 | 31.0 | 10.1 |
| May-20 | 1.21 | 3.22 | 30.4 | 33.6 | 40.1 |
| Jun-20 | 0.890 | 0.718 | 19.8 | 20.5 | 15.4 |
| Jul-20 | 0.865 | 0.305 | 11.6 | 11.9 | 7.32 |
| Aug-20 | 0.923 | 0.511 | 24.0 | 24.5 | 32.2 |
| Sep-20 | 0.858 | 0.190 | 6.46 | 6.65 | 4.56 |
| Oct-20 | 1.08 | 0.199 | 13.6 | 13.8 | 0.598 |
| Nov-20 | 1.17 | 0.494 | 34.1 | 34.5 | 14.3 |
| Dec-20 | 1.29 | 0.351 | 1.76 | 2.11 | 9.83 |
| Jan-21 | 1.45 | 0.582 | 33.2 | 33.7 | 41.3 |
| Feb-21 | 1.52 | 0.605 | 29.7 | 30.3 | 27.2 |
| Mar-21 | 1.45 | 0.361 | 16.2 | 16.6 | 16.2 |
| Apr-21 | 1.18 | 0.220 | 5.93 | 6.15 | 1.76 |
| May-21 | 0.994 | 0.547 | 23.0 | 23.5 | 16.4 |
| Jun-21 | 0.798 | 0.190 | 7.98 | 8.17 | 13.9 |
| Jul-21 | 0.827 | 0.463 | 10.4 | 10.9 | 5.56 |
| Aug-21 | 0.898 | 0.374 | 18.0 | 18.3 | 33.3 |
| Sep-21 | 0.941 | 0.298 | 15.8 | 16.1 | 5.06 |
| Oct-21 | 1.42 | 0.176 | 13.7 | 13.9 | 12.7 |
| Nov-21 | 1.56 | 3.93 | 29.2 | 33.1 | 25.8 |

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| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 2.40 | 0.308 | 30.8 | 31.1 | 58.0 |
| Jan-22 | 1.87 | 0.462 | 62.8 | 63.3 | 32.3 |
| Feb-22 | 1.47 | 0.159 | 8.27 | 8.43 | 2.86 |
| Mar-22 | 1.27 | 0.296 | 18.9 | 19.2 | 18.9 |
| Apr-22 | 1.19 | 0.203 | 1.62 | 1.83 | 16.6 |
| May-22 | 0.982 | 0.146 | 12.2 | 12.4 | 13.4 |
| Jun-22 | 0.764 | 0.148 | 13.0 | 13.1 | 9.15 |
| Jul-22 | 0.743 | 1.03 | 10.8 | 11.9 | 7.73 |
| Aug-22 | 0.671 | 0.503 | 11.9 | 12.4 | 13.8 |
| Sep-22 | 0.820 | 0.444 | 6.07 | 6.51 | 11.1 |
| Oct-22 | 0.983 | 0.600 | 4.30 | 4.90 | 5.90 |
| Nov-22 | 1.19 | 1.80 | 29.3 | 31.1 | 16.6 |
| Dec-22 | 1.73 | 0.500 | 18.4 | 18.9 | 7.80 |
| Jan-23 | 3.17 | 2.20 | 35.4 | 37.6 | 16.0 |
| Feb-23 | 1.91 | 1.00 | 33.4 | 34.4 | 19.4 |
| Mar-23 | 3.36 | 5.50 | 97.7 | 103 | 82.0 |
| Apr-23 | 1.89 | 1.60 | 56.8 | 58.4 | 44.2 |
| May-23 | 1.35 | 1.40 | 23.4 | 24.8 | 6.60 |
| Jun-23 | 1.14 | 2.60 | 0.800 | 3.40 | 29.2 |
| Jul-23 | 0.908 | 1.00 | 20.8 | 21.8 | 13.7 |
| Aug-23 | 0.818 | 0.400 | 11.9 | 12.3 | 21.7 |
| Sep-23 | 1.00 | 3.20 | 9.50 | 12.7 | 5.50 |
| Oct-23 | 1.07 | 1.15 | 10.3 | 11.5 | 22.6 |
| Nov-23 | 1.25 | 0.975 | 11.1 | 12.0 | 16.3 |
| Dec-23 | 1.57 | 4.00 | 13.5 | 17.5 | 37.5 |
| Jan-24 | 2.00 | 3.18 | 57.9 | 61.1 | 31.8 |
| Feb-24 | 2.86 | 7.60 | 110 | 118 | 55.7 |
| Mar-24 | 2.13 | 4.37 | 71.7 | 76.0 | 41.1 |
| Apr-24 | 1.71 | 1.51 | 70.2 | 71.7 | 53.6 |
| May-24 | 1.24 | 4.05 | 32.4 | 36.5 | 25.8 |
| Jun-24 | 0.968 | 1.37 | 22.2 | 23.6 | 18.9 |
| Jul-24 | 0.788 | 0.712 | 16.1 | 16.8 | 7.83 |
| Aug-24 | 0.794 | 0.614 | 13.7 | 14.3 | 1.84 |
| Sep-24 | 0.985 | 0.629 | 26.4 | 27.0 | 25.8 |
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| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **1.05** | **1.49** | **25.0** | **26.5** | **17.4** |
| **Dry Season**  **Trend** | **Down** | **None** | **Down** | **Down** | **None** |
| **Wet Season**  **Average** | **1.70** | **3.07** | **42.7** | **45.8** | **27.7** |
| **Average Annual** | **1.43** | **2.46** | **35.8** | **38.3** | **23.8** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 2-1. Discharge: Benicia Monthly Flows and Loads\***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 2.05 | 256 | 7.13 | 263 | 32.5 |
| Nov-12 | 3.20 | 314 | 34.9 | 349 | 35.1 |
| Dec-12 | 2.47 | 131 | 55.1 | 186 | 23.3 |
| Jan-13 | 2.52 | 171 | 31.3 | 203 | 20.0 |
| Feb-13 | 2.15 | 146 | 51.2 | 197 | 39.0 |
| Mar-13 | 2.10 | 195 | 34.3 | 229 | 21.8 |
| Apr-13 | 1.79 | 122 | 26.9 | 149 | 10.8 |
| May-13 | 2.05 | 178 | 42.5 | 221 | 24.8 |
| Jun-13 | 1.54 | 81.5 | 38.4 | 120 | 17.5 |
| Jul-13 | 2.17 | 262 | 28.8 | 291 | 20.5 |
| Aug-13 | 2.09 | 229 | 34.8 | 264 | 28.4 |
| Sep-13 | 2.08 | 197 | 35.3 | 232 | 28.3 |
| Oct-13 | 1.93 | 109 | 59.8 | 169 | 28.5 |
| Nov-13 | 2.35 | 177 | 51.0 | 228 | 32.6 |
| Dec-13 | 2.27 | 206 | 37.2 | 243 | 29.2 |
| Jan-14 | 2.03 | 210 | 32.8 | 243 | 20.5 |
| Feb-14 | 2.47 | 196 | 33.4 | 230 | 28.3 |
| Mar-14 | 2.40 | 181 | 49.0 | 230 | 30.8 |
| Apr-14 | 1.71 | 84.0 | 32.9 | 117 | 19.4 |
| May-14 | 2.11 | 152 | 58.2 | 210 | 30.3 |
| Jun-14 | 1.67 | 94.7 | 32.8 | 128 | 19.6 |
| Jul-14 | 1.85 | 133 | 63.6 | 197 | 23.8 |
| Aug-14 | 1.82 | 176 | 61.0 | 237 | 30.5 |
| Sep-14 | 1.82 | 191 | 34.5 | 225 | 15.4 |
| Oct-14 | 1.80 | 148 | 39.7 | 188 | 6.73 |
| Nov-14 | 1.83 | 186 | 36.6 | 223 | 50.8 |
| Dec-14 | 3.52 | 438 | 10.9 | 449 | 40.3 |
| Jan-15 | 2.09 | 218 | 82.1 | 300 | 28.9 |
| Feb-15 | 2.29 | 170 | 50.2 | 220 | 26.5 |
| Mar-15 | 1.97 | 153 | 42.0 | 195 | 31.3 |
| Apr-15 | 1.83 | 206 | 34.1 | 240 | 27.7 |
| May-15 | 1.74 | 192 | 47.0 | 239 | 28.4 |
| Jun-15 | 1.66 | 176 | 35.9 | 212 | 21.7 |
| Jul-15 | 1.63 | 98.1 | 85.9 | 184 | 19.0 |
| Aug-15 | 1.69 | 116 | 60.9 | 177 | 24.4 |
| Sep-15 | 1.68 | 135 | 44.4 | 179 | 8.41 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 1.68 | 153 | 54.0 | 207 | 22.3 |
| Nov-15 | 1.79 | 188 | 49.1 | 237 | 28.2 |
| Dec-15 | 1.92 | 199 | 2.69 | 202 | 5.58 |
| Jan-16 | 2.54 | 188 | 50.5 | 238 | 11.3 |
| Feb-16 | 2.03 | 173 | 33.3 | 206 | 13.2 |
| Mar-16 | 2.77 | 223 | 70.4 | 293 | 12.7 |
| Apr-16 | 2.09 | 241 | 14.7 | 255 | 5.48 |
| May-16 | 1.93 | 219 | 17.3 | 236 | 3.52 |
| Jun-16 | 1.85 | 223 | 32.2 | 255 | 18.6 |
| Jul-16 | 1.80 | 141 | 66.8 | 207 | 27.9 |
| Aug-16 | 1.79 | 165 | 39.1 | 204 | 20.9 |
| Sep-16 | 1.75 | 212 | 41.0 | 253 | 11.1 |
| Oct-16 | 1.85 | 199 | 26.4 | 226 | 12.2 |
| Nov-16 | 1.84 | 83.1 | 51.3 | 134 | 11.8 |
| Dec-16 | 2.15 | 154 | 122 | 275 | 7.53 |
| Jan-17 | 4.16 | 131 | 109 | 239 | 28.8 |
| Feb-17 | 4.36 | 270 | 76.0 | 346 | 39.2 |
| Mar-17 | 2.95 | 184 | 28.8 | 213 | 16.1 |
| Apr-17 | 2.56 | 111 | 173 | 285 | 37.1 |
| May-17 | 2.12 | 180 | 54.8 | 235 | 18.8 |
| Jun-17 | 1.95 | 140 | 51.4 | 192 | 12.5 |
| Jul-17 | 1.87 | 270 | 40.1 | 310 | 4.64 |
| Aug-17 | 1.85 | 182 | 51.5 | 234 | 4.13 |
| Sep-17 | 1.82 | 200 | 31.2 | 232 | 4.65 |
| Oct-17 | 1.76 | 210 | 37.3 | 247 | 4.40 |
| Nov-17 | 1.92 | 193 | 44.0 | 237 | 13.1 |
| Dec-17 | 2.03 | 216 | 15.3 | 231 | 30.6 |
| Jan-18 | 2.20 | 202 | 7.55 | 210 | 12.5 |
| Feb-18 | 1.87 | 279 | 22.3 | 301 | 20.2 |
| Mar-18 | 2.47 | 237 | 81.0 | 318 | 37.5 |
| Apr-18 | 2.53 | 280 | 10.3 | 291 | 21.5 |
| May-18 | 1.97 | 254 | 22.5 | 277 | 10.2 |
| Jun-18 | 1.90 | 262 | 40.4 | 302 | 6.41 |
| Jul-18 | 1.79 | 167 | 58.0 | 224 | 17.3 |
| Aug-18 | 1.74 | 212 | 19.2 | 231 | 6.62 |
| Sep-18 | 1.72 | 78.6 | 64.8 | 143 | 7.86 |
| Oct-18 | 1.73 | 91.1 | 44.3 | 135 | 7.16 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 1.93 | 107 | 56.0 | 163 | 14.7 |
| Dec-18 | 2.00 | 203 | 17.4 | 221 | 57.4 |
| Jan-19 | 2.48 | 246 | 0.615 | 246 | 22.0 |
| Feb-19 | 3.71 | 360 | 0.763 | 360 | 33.8 |
| Mar-19 | 3.19 | 308 | 3.08 | 312 | 12.8 |
| Apr-19 | 2.23 | 232 | 9.83 | 242 | 17.0 |
| May-19 | 2.16 | 128 | 79.1 | 207 | 24.8 |
| Jun-19 | 1.96 | 82.4 | 97.4 | 180 | 26.2 |
| Jul-19 | 1.84 | 165 | 26.2 | 192 | 3.93 |
| Aug-19 | 1.79 | 138 | 44.1 | 182 | 6.54 |
| Sep-19 | 1.76 | 189 | 35.8 | 225 | 4.23 |
| Oct-19 | 1.72 | 72.0 | 62.0 | 134 | 28.0 |
| Nov-19 | 1.75 | 65.0 | 41.0 | 106 | 13.0 |
| Dec-19 | 2.13 | 172 | 28.0 | 200 | 10.0 |
| Jan-20 | 1.97 | 343 | 36.0 | 379 | 8.00 |
| Feb-20 | 1.81 | 207 | 21.0 | 228 | 12.0 |
| Mar-20 | 1.93 | 191 | 21.0 | 212 | 19.0 |
| Apr-20 | 1.90 | 98.0 | 70.0 | 168 | 26.0 |
| May-20 | 1.73 | 119 | 59.0 | 178 | 12.0 |
| Jun-20 | 1.70 | 192 | 20.0 | 212 | 7.00 |
| Jul-20 | 1.67 | 265 | 7.00 | 272 | 23.0 |
| Aug-20 | 1.66 | 233 | 17.0 | 250 | 5.00 |
| Sep-20 | 1.67 | 129 | 65.0 | 194 | 28.0 |
| Oct-20 | 1.63 | 179 | 43.7 | 225 | 21.2 |
| Nov-20 | 1.67 | 255 | 15.7 | 268 | 13.8 |
| Dec-20 | 1.73 | 206 | 41.2 | 245 | 35.4 |
| Jan-21 | 1.83 | 106 | 55.6 | 159 | 23.8 |
| Feb-21 | 1.84 | 219 | 14.4 | 233 | 22.6 |
| Mar-21 | 1.79 | 238 | 10.5 | 252 | 3.85 |
| Apr-21 | 1.66 | 200 | 19.3 | 220 | 12.0 |
| May-21 | 1.59 | 226 | 29.1 | 256 | 11.3 |
| Jun-21 | 1.57 | 213 | 18.9 | 230 | 11.2 |
| Jul-21 | 1.56 | 198 | 28.0 | 227 | 5.30 |
| Aug-21 | 1.60 | 147 | 44.1 | 190 | 3.37 |
| Sep-21 | 1.57 | 212 | 20.0 | 230 | 20.6 |
| Oct-21 | 2.09 | 178 | 39.2 | 217 | 11.3 |
| Nov-21 | 1.76 | 170 | 22.1 | 192 | 15.5 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 2.68 | 182 | 19.4 | 202 | 13.4 |
| Jan-22 | 2.07 | 260 | 11.0 | 271 | 22.8 |
| Feb-22 | 1.76 | 84.1 | 97.1 | 181 | 27.2 |
| Mar-22 | 1.70 | 104 | 84.1 | 188 | 28.5 |
| Apr-22 | 1.68 | 215 | 46.8 | 262 | 34.1 |
| May-22 | 1.60 | 94.8 | 114 | 209 | 30.3 |
| Jun-22 | 1.55 | 118 | 57.9 | 176 | 28.3 |
| Jul-22 | 1.53 | 254 | 1.54 | 255 | 4.84 |
| Aug-22 | 1.54 | 200 | 32.6 | 233 | 21.7 |
| Sep-22 | 1.52 | 120 | 28.3 | 148 | 19.1 |
| Oct-22 | 1.52 | 149 | 25.7 | 171 | 12.6 |
| Nov-22 | 1.55 | 154 | 35.4 | 189 | 12.0 |
| Dec-22 | 2.25 | 136 | 27.9 | 164 | 17.0 |
| Jan-23 | 4.45 | 249 | 21.9 | 269 | 11.9 |
| Feb-23 | 2.36 | 162 | 34.7 | 199 | 15.5 |
| Mar-23 | 3.96 | 207 | 20.7 | 226 | 12.8 |
| Apr-23 | 2.42 | 153 | 23.0 | 179 | 11.9 |
| May-23 | 1.94 | 265 | 8.83 | 273 | 9.63 |
| Jun-23 | 1.80 | 229 | 3.19 | 229 | 5.89 |
| Jul-23 | 1.71 | 236 | 3.14 | 236 | 24.2 |
| Aug-23 | 1.70 | 166 | 29.8 | 199 | 66.2 |
| Sep-23 | 1.68 | 210 | 5.47 | 216 | 8.90 |
| Oct-23 | 1.67 | 129 | 41.2 | 170 | 9.65 |
| Nov-23 | 1.72 | 127 | 37.5 | 165 | 17.2 |
| Dec-23 | 1.96 | 109 | 76.8 | 186 | 36.5 |
| Jan-24 | 2.23 | 289 | 2.89 | 292 | 21.5 |
| Feb-24 | 3.03 | 233 | 26.0 | 259 | 11.7 |
| Mar-24 | 2.61 | 133 | 88.9 | 222 | 28.5 |
| Apr-24 | 2.10 | 133 | 44.1 | 177 | 12.5 |
| May-24 | 1.94 | 63.1 | 88.1 | 151 | 16.9 |
| Jun-24 | 1.73 | 225 | 3.93 | 229 | 3.86 |
| Jul-24 | 1.65 | 285 | 10.3 | 295 | 9.08 |
| Aug-24 | 1.66 | 259 | 0.322 | 259 | 32.9 |
| Sep-24 | 1.62 | 264 | 0.258 | 264 | 31.9 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **1.77** | **182** | **38.5** | **221** | **17.0** |
| **Dry Season**  **Trend** | **Down** | **None** | **Down** | **None** | **None** |
| **Wet Season**  **Average** | **2.22** | **188** | **39.9** | **228** | **21.1** |
| **Average Annual** | **2.03** | **186** | **39.3** | **225** | **19.4** |

\* The City of Benicia has sampled more intensively since September 2015 than required under the Nutrient Watershed Permit. This data represents the average monthly loads during this intensive sampling period.

\*\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 3-1. Discharge: Burlingame Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 2.66 | 186 | 53.5 | 239 | 54.7 |
| Nov-12 | 2.86 | 245 | 75.7 | 321 | 54.1 |
| Dec-12 | 4.00 | 299 | 63.6 | 362 | 98.3 |
| Jan-13 | 3.35 | 393 | 101 | 494 | 69.6 |
| Feb-13 | 3.26 | 263 | 101 | 364 | 41.4 |
| Mar-13 | 3.04 | 350 | 64.0 | 414 | 132 |
| Apr-13 | 3.16 | 363 | 29.3 | 392 | 142 |
| May-13 | 2.87 | 323 | 54.7 | 378 | 119 |
| Jun-13 | 2.80 | 316 | 112 | 428 | 97.5 |
| Jul-13 | 2.80 | 211 | 94.2 | 305 | 43.3 |
| Aug-13 | 2.96 | 373 | 168 | 541 | 192 |
| Sep-13 | 2.66 | 333 | 197 | 529 | 173 |
| Oct-13 | 2.77 | 228 | 457 | 685 | 160 |
| Nov-13 | 3.28 | 351 | 139 | 491 | 103 |
| Dec-13 | 2.92 | 173 | 303 | 475 | 130 |
| Jan-14 | 2.86 | 229 | 370 | 599 | 191 |
| Feb-14 | 4.30 | 405 | 226 | 631 | 338 |
| Mar-14 | 3.25 | 329 | 125 | 454 | 175 |
| Apr-14 | 2.81 | 251 | 171 | 421 | 63.9 |
| May-14 | 2.58 | 184 | 114 | 297 | 26.3 |
| Jun-14 | 2.50 | 218 | 223 | 441 | 80.3 |
| Jul-14 | 2.46 | 195 | 28.9 | 224 | 17.7 |
| Aug-14 | 2.59 | 202 | 8.56 | 211 | 12.5 |
| Sep-14 | 2.63 | 248 | 17.3 | 265 | 25.4 |
| Oct-14 | 2.65 | 169 | 65.0 | 234 | 37.4 |
| Nov-14 | 2.92 | 254 | 22.9 | 276 | 12.0 |
| Dec-14 | 5.04 | 386 | 101 | 487 | 11.0 |
| Jan-15 | 2.92 | 298 | 5.15 | 303 | 5.50 |
| Feb-15 | 3.33 | 312 | 4.73 | 317 | 29.7 |
| Mar-15 | 2.85 | 302 | 2.69 | 305 | 30.1 |
| Apr-15 | 2.97 | 186 | 39.0 | 225 | 21.5 |
| May-15 | 2.79 | 251 | 25.8 | 277 | 21.2 |
| Jun-15 | 2.80 | 250 | 32.4 | 283 | 40.6 |
| Jul-15 | 2.51 | 291 | 38.7 | 330 | 30.3 |
| Aug-15 | 2.38 | 105 | 60.2 | 165 | 36.3 |
| Sep-15 | 2.36 | 308 | 0.727 | 309 | 29.1 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 2.42 | 266 | 0.683 | 266 | 26.2 |
| Nov-15 | 2.41 | 257 | 13.6 | 270 | 11.5 |
| Dec-15 | 2.99 | 249 | 14.1 | 263 | 29.1 |
| Jan-16 | 3.82 | 329 | 16.7 | 346 | 29.7 |
| Feb-16 | 2.82 | 284 | 1.76 | 286 | 22.8 |
| Mar-16 | 4.26 | 346 | 5.12 | 351 | 35.7 |
| Apr-16 | 2.72 | 328 | 24.2 | 352 | 41.7 |
| May-16 | 2.50 | 312 | 35.7 | 348 | 19.2 |
| Jun-16 | 2.49 | 204 | 63.2 | 267 | 4.60 |
| Jul-16 | 2.46 | 323 | 17.4 | 340 | 3.56 |
| Aug-16 | 2.54 | 94.6 | 0.185 | 94.8 | 26.5 |
| Sep-16 | 2.72 | 294 | 23.1 | 317 | 15.8 |
| Oct-16 | 2.89 | 161 | 58.5 | 219 | 3.53 |
| Nov-16 | 2.87 | 333 | 20.1 | 353 | 10.4 |
| Dec-16 | 3.83 | 894 | 6.25 | 901 | 53.9 |
| Jan-17 | 5.82 | 353 | 82.0 | 435 | 3.35 |
| Feb-17 | 6.05 | 251 | 79.7 | 331 | 97.4 |
| Mar-17 | 4.11 | 261 | 1.92 | 263 | 36.9 |
| Apr-17 | 3.64 | 525 | 14.3 | 539 | 54.1 |
| May-17 | 2.96 | 291 | 5.33 | 296 | 37.1 |
| Jun-17 | 2.86 | 311 | 44.4 | 355 | 5.39 |
| Jul-17 | 2.74 | 144 | 72.8 | 217 | 4.33 |
| Aug-17 | 2.86 | 233 | 53.9 | 287 | 37.7 |
| Sep-17 | 2.78 | 123 | 76.8 | 200 | 6.19 |
| Oct-17 | 2.64 | 465 | 8.83 | 474 | 65.9 |
| Nov-17 | 2.97 | 21.5 | 81.5 | 103 | 57.2 |
| Dec-17 | 2.65 | 205 | 106 | 311 | 49.2 |
| Jan-18 | 3.18 | 222 | 108 | 330 | 28.2 |
| Feb-18 | 2.55 | 302 | 38.4 | 340 | 30.2 |
| Mar-18 | 3.48 | 396 | 2.27 | 398 | 4.41 |
| Apr-18 | 3.01 | 396 | 12.6 | 408 | 21.9 |
| May-18 | 2.56 | 346 | 22.2 | 368 | 21.7 |
| Jun-18 | 2.44 | 377 | 16.2 | 393 | 6.88 |
| Jul-18 | 2.47 | 181 | 45.7 | 226 | 5.51 |
| Aug-18 | 2.51 | 359 | 20.3 | 379 | 80.4 |
| Sep-18 | 2.47 | 570 | 9.05 | 579 | 17.5 |
| Oct-18 | 2.40 | 313 | 20.5 | 333 | 17.2 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 2.62 | 501 | 1.36 | 502 | 25.0 |
| Dec-18 | 2.73 | 502 | 21.3 | 523 | 12.3 |
| Jan-19 | 3.59 | 492 | 11.0 | 503 | 48.5 |
| Feb-19 | 4.91 | 486 | 68.8 | 555 | 42.5 |
| Mar-19 | 4.38 | 483 | 32.2 | 515 | 39.4 |
| Apr-19 | 2.80 | 314 | 91.9 | 406 | 49.3 |
| May-19 | 2.78 | 126 | 103 | 230 | 19.1 |
| Jun-19 | 2.53 | 142 | 439 | 581 | 71.9 |
| Jul-19 | 2.38 | 339 | 201 | 540 | 12.6 |
| Aug-19 | 2.36 | 153 | 313 | 466 | 29.7 |
| Sep-19 | 2.40 | 359 | 76.3 | 435 | 4.14 |
| Oct-19 | 2.40 | 382 | 73.6 | 455 | 48.4 |
| Nov-19 | 2.47 | 268 | 250 | 518 | 47.3 |
| Dec-19 | 2.99 | 231 | 270 | 501 | 32.3 |
| Jan-20 | 2.81 | 340 | 210 | 550 | 38.1 |
| Feb-20 | 2.51 | 336 | 81.0 | 417 | 48.4 |
| Mar-20 | 2.57 | 49.8 | 89.2 | 139 | 25.8 |
| Apr-20 | 2.54 | 177 | 452 | 629 | 35.4 |
| May-20 | 2.25 | 338 | 56.0 | 394 | 40.5 |
| Jun-20 | 2.20 | 143 | 310 | 453 | 23.1 |
| Jul-20 | 2.17 | 155 | 388 | 544 | 47.5 |
| Aug-20 | 2.19 | 174 | 226 | 400 | 27.4 |
| Sep-20 | 2.18 | 284 | 236 | 520 | 18.9 |
| Oct-20 | 2.08 | 163 | 77.6 | 241 | 43.5 |
| Nov-20 | 2.15 | 291 | 336 | 627 | 39.3 |
| Dec-20 | 2.24 | 244 | 343 | 588 | 61.8 |
| Jan-21 | 2.40 | 246 | 294 | 540 | 58.4 |
| Feb-21 | 2.44 | 259 | 203 | 462 | 31.9 |
| Mar-21 | 2.43 | 420 | 197 | 617 | 45.5 |
| Apr-21 | 2.09 | 218 | 45.9 | 264 | 21.8 |
| May-21 | 1.99 | 395 | 27.6 | 594 | 2.91 |
| Jun-21 | 1.98 | 16.7 | 73.0 | 89.8 | 37.3 |
| Jul-21 | 1.86 | 173 | 62.3 | 236 | 35.3 |
| Aug-21 | 1.89 | 246 | 26.2 | 272 | 3.11 |
| Sep-21 | 1.84 | 241 | 53.1 | 294 | 17.0 |
| Oct-21 | 2.91 | 166 | 75.9\*\*\* | 282\*\*\* | 46.7 |
| Nov-21 | 2.44 | 172 | 98.6 | 271 | 5.27 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 4.88 | 465 | 29.1 | 494 | 57.6 |
| Jan-22 | 2.94 | 402 | 6.89 | 409 | 37.3 |
| Feb-22 | 2.29 | 399 | 4.61 | 403 | 7.71 |
| Mar-22 | 2.34 | 416 | 859 | 1,280 | 12.4 |
| Apr-22 | 2.43 | 309 | 73.9 | 383 | 39.5 |
| May-22 | 2.11 | 241 | 85.9 | 327 | 54.6 |
| Jun-22 | 2.06 | 380 | 93.0\*\*\* | 260\*\*\* | 45.1 |
| Jul-22 | 2.01 | 185 | 93.0\*\*\* | 260\*\*\* | 28.1 |
| Aug-22 | 2.02 | 93.1 | 100 | 193 | 4.19 |
| Sep-22 | 1.97 | 181 | 58.6 | 239 | 24.6 |
| Oct-22 | 1.90 | 165 | 51.0 | 319 | 4.87 |
| Nov-22 | 2.11 | 355 | 43.4 | 398 | 73.3 |
| Dec-22 | 3.81 | 277 | 2.96 | 280 | 43.0 |
| Jan-23 | 6.78 | 437 | 13.1 | 450 | 25.9 |
| Feb-23 | 3.53 | 278 | 7.42 | 286 | 29.7 |
| Mar-23 | 6.15 | 389 | 8.52 | 397 | 8.22 |
| Apr-23 | 2.82 | 256 | 9.99 | 266 | 32.5 |
| May-23 | 2.50 | 313 | 4.14 | 317 | 47.5 |
| Jun-23 | 2.16 | 418 | 15.7 | 434 | 31.3 |
| Jul-23 | 1.99 | 192 | 86.4 | 278 | 31.0 |
| Aug-23 | 2.01 | 114 | 56.8 | 170 | 9.08 |
| Sep-23 | 1.99 | 135 | 55.5 | 190 | 8.24 |
| Oct-23 | 1.95 | 184 | 66.8 | 250 | 52.9 |
| Nov-23 | 2.06 | 153 | 98.6 | 252 | 48.6 |
| Dec-23 | 2.49 | 403 | 10.4 | 414 | 65.5 |
| Jan-24 | 3.34 | 211 | 71.3 | 283 | 5.55 |
| Feb-24 | 3.90 | 105 | 94.6 | 200 | 13.6 |
| Mar-24 | 3.31 | 221 | 111 | 332 | 48.4 |
| Apr-24 | 2.60 | 265 | 42.6 | 308 | 27.4 |
| May-24 | 2.36 | 212 | 33.8 | 246 | 5.34 |
| Jun-24 | 2.17 | 216 | 45.1 | 261 | 8.63 |
| Jul-24 | 2.07 | 237 | 36.4 | 274 | 34.8 |
| Aug-24 | 2.08 | 164 | 78.8 | 242 | 10.1 |
| Sep-24 | 2.03 | 153 | 46.7 | 200 | 9.05 |
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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **2.39** | **241** | **86.0** | **326** | **33.0** |
| **Dry Season**  **Trend \*\*** | **Down** | **None** | **None** | **None** | **Down** |
| **Wet Season**  **Average** | **3.13** | **304** | **87.1** | **393** | **49.0** |
| **Average Annual** | **2.82** | **278** | **86.6** | **365** | **42.3** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

\*\*\* No nitrate plus nitrate and TIN samples taken during these months. In order to provide a complete dataset, the average of the months prior and post sampling for the missed months was used.

**Table 4-2. Discharge: Central San Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia\*\*\*** | **Nitrate + Nitrite** | **TIN\*, \*\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 33.1 | 3,300 | 290 | 3,590 | 102 |
| Nov-12 | 35.3 | 3,530 | 269 | 3,800 | 85.5 |
| Dec-12 | 51.1 | 3,850 | 357 | 4,210 | 159 |
| Jan-13 | 43.2 | 3,670 | 569 | 4,240 | 131 |
| Feb-13 | 40.0 | 3,880 | 340 | 4,220 | 139 |
| Mar-13 | 37.6 | 3,720 | 170 | 3,890 | 137 |
| Apr-13 | 39.9 | 3,740 | 344 | 4,090 | 216 |
| May-13 | 36.1 | 3,600 | 191 | 3,790 | 156 |
| Jun-13 | 34.4 | 3,380 | 220 | 3,600 | 135 |
| Jul-13 | 33.9 | 3,470 | 149 | 3,620 | 102 |
| Aug-13 | 32.6 | 3,600 | 160 | 3,760 | 123 |
| Sep-13 | 33.4 | 3,630 | 184 | 3,810 | 111 |
| Oct-13 | 33.3 | 3,640 | 182 | 3,820 | 108 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia\*\*\*** | **Nitrate + Nitrite** | **TIN\*, \*\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-13 | 34.0 | 3,600 | 255 | 3,850 | 92.0 |
| Dec-13 | 36.3 | 3,700 | 336 | 4,040 | 77.5 |
| Jan-14 | 34.0 | 3,220 | 342 | 3,560 | 62.5 |
| Feb-14 | 42.9 | 3,920 | 270 | 4,190 | 85.0 |
| Mar-14 | 39.2 | 3,500 | 370 | 3,870 | 77.5 |
| Apr-14 | 43.0 | 3,630 | 550 | 4,180 | 99.5 |
| May-14 | 36.3 | 3,380 | 264 | 3,640 | 106 |
| Jun-14 | 35.0 | 3,260 | 268 | 3,530 | 109 |
| Jul-14 | 30.9 | 3,380 | 182 | 3,560 | 86.5 |
| Aug-14 | 30.4 | 3,570 | 178 | 3,750 | 67.6 |
| Sep-14 | 30.5 | 3,360 | 325 | 3,680 | 82.7 |
| Oct-14 | 30.2 | 3,620 | 323 | 3,940 | 81.1 |
| Nov-14 | 31.7 | 3,470 | 465 | 3,940 | 92.1 |
| Dec-14 | 47.3 | 3,580 | 705 | 4,280 | 146 |
| Jan-15 | 35.7 | 3,500 | 463 | 3,960 | 130 |
| Feb-15 | 40.7 | 3,240 | 550 | 3,790 | 165 |
| Mar-15 | 35.0 | 3,170 | 479 | 3,650 | 175 |
| Apr-15 | 32.6 | 3,200 | 467 | 3,660 | 172 |
| May-15 | 30.3 | 3,170 | 395 | 3,560 | 149 |
| Jun-15 | 28.7 | 2,850 | 524 | 3,370 | 149 |
| Jul-15 | 27.0 | 2,780 | 501 | 3,280 | 85.2 |
| Aug-15 | 27.2 | 2,790 | 406 | 3,200 | 85.5 |
| Sep-15 | 27.2 | 3,210 | 260 | 3,470 | 92.9 |
| Oct-15 | 27.8 | 3,400 | 260 | 3,660 | 93.6 |
| Nov-15 | 29.6 | 3,330 | 393 | 3,720 | 116 |
| Dec-15 | 32.4 | 2,820 | 747 | 3,570 | 95.7 |
| Jan-16 | 40.7 | 3,670 | 302 | 3,970 | 101 |
| Feb-16 | 35.1 | 3,730 | 327 | 4,060 | 94.7 |
| Mar-16 | 50.9 | 3,760 | 365 | 4,120 | 130 |
| Apr-16 | 36.8 | 3,620 | 333 | 3,950 | 136 |
| May-16 | 33.1 | 3,790 | 239 | 4,030 | 122 |
| Jun-16 | 30.5 | 3,540 | 120 | 3,660 | 130 |
| Jul-16 | 29.0 | 3,180 | 283 | 3,460 | 80.0 |
| Aug-16 | 29.1 | 3,410 | 159 | 3,560 | 115 |
| Sep-16 | 28.9 | 3,660 | 178 | 3,830 | 92.7 |
| Oct-16 | 31.8 | 3,670 | 277 | 3,950 | 93.9 |
| Nov-16 | 33.1 | 3,570 | 402 | 3,970 | 75.1 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia\*\*\*** | **Nitrate + Nitrite** | **TIN\*, \*\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-16 | 38.8 | 3,910 | 284 | 4,190 | 117 |
| Jan-17 | 67.3 | 4,140 | 475 | 4,620 | 219 |
| Feb-17 | 77.1 | 3,890 | 574 | 4,460 | 278 |
| Mar-17 | 55.4 | 4,100 | 397 | 4,500 | 124 |
| Apr-17 | 49.1 | 3,760 | 454 | 4,220 | 81.2 |
| May-17 | 38.6 | 3,250 | 515 | 3,760 | 105 |
| Jun-17 | 35.1 | 3,520 | 296 | 3,820 | 109 |
| Jul-17 | 32.1 | 3,190 | 309 | 3,490 | 87.7 |
| Aug-17 | 32.0 | 3,160 | 293 | 3,450 | 118 |
| Sep-17 | 31.6 | 3,110 | 428 | 3,530 | 116 |
| Oct-17 | 31.2 | 3,390 | 323 | 3,710 | 83.9 |
| Nov-17 | 34.9 | 3,860 | 282 | 4,140 | 125 |
| Dec-17 | 33.8 | 3,570 | 363 | 3,930 | 148 |
| Jan-18 | 39.2 | 3,760 | 252 | 4,010 | 123 |
| Feb-18 | 34.8 | 3,910 | 188 | 4,100 | 121 |
| Mar-18 | 46.2 | 4,220 | 221 | 4,440 | 154 |
| Apr-18 | 42.1 | 3,770 | 274 | 4,050 | 136 |
| May-18 | 34.7 | 3,510 | 292 | 3,800 | 132 |
| Jun-18 | 31.6 | 3,340 | 333 | 3,670 | 114 |
| Jul-18 | 29.9 | 3,000 | 362 | 3,330 | 95.7 |
| Aug-18 | 30.0 | 3,170 | 277 | 3,450 | 113 |
| Sep-18 | 30.0 | 3,240 | 247 | 3,480 | 124 |
| Oct-18 | 29.9 | 3,630 | 178 | 3,810 | 119 |
| Nov-18 | 32.6 | 3,560 | 180 | 3,740 | 89.2 |
| Dec-18 | 35.7 | 3,630 | 336 | 3,980 | 75.5 |
| Jan-19 | 43.1 | 3,670 | 303 | 3,980 | 107 |
| Feb-19 | 61.2 | 4,120 | 156 | 4,300 | 224 |
| Mar-19 | 55.2 | 4,100 | 425 | 4,520 | 247 |
| Apr-19 | 41.1 | 3,840 | 252 | 4,050 | 233 |
| May-19 | 38.5 | 3,940 | 177 | 4,120 | 154 |
| Jun-19 | 33.7 | 3,130 | 289 | 3,420 | 95.4 |
| Jul-19 | 31.1 | 3,010 | 257 | 3,270 | 92.8 |
| Aug-19 | 30.4 | 2,810 | 287 | 3,100 | 113 |
| Sep-19 | 30.3 | 2,960 | 223 | 3,180 | 99.4 |
| Oct-19 | 30.2 | 3,070 | 187 | 3,260 | 91.8 |
| Nov-19 | 31.6 | 3,450 | 90.6 | 3,540 | 107 |
| Dec-19 | 38.0 | 4,160 | 62.1 | 4,220 | 142 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia\*\*\*** | **Nitrate + Nitrite** | **TIN\*, \*\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Jan-20 | 36.7 | 4,310 | 52.4 | 4,360 | 168 |
| Feb-20 | 32.6 | 3,900 | 28.3 | 3,930 | 136 |
| Mar-20 | 37.1 | 4,440 | 65.0 | 4,510 | 146 |
| Apr-20 | 36.3 | 4,420 | 44.6 | 4,460 | 194 |
| May-20 | 33.2 | 4,260 | 62.7 | 4,330 | 97.8 |
| Jun-20 | 31.1 | 3,460 | 191 | 3,660 | 94.2 |
| Jul-20 | 30.0 | 3,780 | 152 | 3,930 | 110 |
| Aug-20 | 31.0 | 3,420 | 199 | 3,620 | 83.1 |
| Sep-20 | 32.2 | 3,760 | 166 | 3,920 | 83.2 |
| Oct-20 | 32.0 | 3,750 | 150 | 3,900 | 112 |
| Nov-20 | 32.6 | 4,260 | 33.3 | 4,290 | 136 |
| Dec-20 | 32.5 | 4,470 | 54.1 | 4,530 | 136 |
| Jan-21 | 34.0 | 4,780 | 25.2 | 4,810 | 169 |
| Feb-21 | 35.2 | 4,810 | 24.4 | 4,830 | 187 |
| Mar-21 | 34.1 | 4,650 | 28.9 | 4,650 | 175 |
| Apr-21 | 32.7 | 4,620 | 31.7 | 4,650 | 188 |
| May-21 | 30.3 | 4,970 | 32.5 | 5,000 | 146 |
| Jun-21 | 29.7 | 3,860 | 13.2 | 3,870 | 166 |
| Jul-21 | 27.1 | 3,370 | 86.1 | 3,450 | 94.4 |
| Aug-21 | 28.0 | 3,320 | 110 | 3,430 | 86.2 |
| Sep-21 | 28.6 | 3,640 | 79.5 | 3,720 | 94.2 |
| Oct-21 | 34.3 | 3,970 | 61.3 | 4,030 | 159 |
| Nov-21 | 35.1 | 4,270 | 46.5 | 4,320 | 183 |
| Dec-21 | 47.9 | 4,720 | 49.2 | 4,750 | 182 |
| Jan-22 | 40.9 | 4,570 | 43.4 | 4,610 | 144 |
| Feb-22 | 34.8 | 4,500 | 27.3 | 4,530 | 133 |
| Mar-22 | 34.0 | 4,860 | 15.8 | 4,880 | 187 |
| Apr-22 | 34.2 | 4,380 | 23.0 | 4,400 | 178 |
| May-22 | 32.0 | 4,250 | 30.8 | 4,290 | 174 |
| Jun-22 | 29.3 | 3,720 | 131 | 3,850 | 116 |
| Jul-22 | 28.4 | 3,110 | 247 | 3,360 | 88.6 |
| Aug-22 | 29.0 | 3,190 | 284 | 3,470 | 103 |
| Sep-22 | 28.8 | 3,310 | 180 | 3,490 | 99.3 |
| Oct-22 | 29.1 | 3,870 | 61.8 | 3,930 | 148 |
| Nov-22 | 30.8 | 3,680 | 314 | 4,000 | 83.8 |
| Dec-22 | 38.6 | 3,610 | 192 | 3,800 | 103 |
| Jan-23 | 79.4 | 4,200 | 112 | 4,310 | 291 |
| **Month, Year** | **Flow** | **Ammonia\*\*\*** | **Nitrate + Nitrite** | **TIN\*, \*\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Feb-23 | 47.8 | 4,510 | 51.4 | 4,560 | 137 |
| Mar-23 | 71.8 | 4,940 | 106 | 5,040 | 188 |
| Apr-23 | 47.9 | 4,230 | 62.9 | 4,300 | 142 |
| May-23 | 39.3 | 3,480 | 316 | 3,800 | 102 |
| Jun-23 | 35.0 | 2,660 | 548 | 3,210 | 92.7 |
| Jul-23 | 32.1 | 3,060 | 321 | 3,380 | 148 |
| Aug-23 | 31.3 | 3,150 | 501 | 3,650 | 188 |
| Sep-23 | 30.8 | 2,560 | 563 | 3,120 | 192 |
| Oct-23 | 31.1 | 2,620 | 657 | 3,270 | 183 |
| Nov-23 | 32.0 | 2,520 | 1,100 | 3,620 | 104 |
| Dec-23 | 34.3 | 3,070 | 410 | 3,480 | 117 |
| Jan-24 | 40.7 | 4,190 | 253 | 4,360 | 87.9 |
| Feb-24 | 49.3 | 4,180 | 140 | 4,320 | 120 |
| Mar-24 | 45.9 | 4,130 | 129 | 4,260 | 116 |
| Apr-24 | 40.9 | 4,020 | 52.7 | 4,070 | 136 |
| May-24 | 37.3 | 4,190 | 61.0 | 4,250 | 155 |
| Jun-24 | 32.8 | 3,130 | 355 | 3,420 | 95.1 |
| Jul-24 | 30.6 | 2,650 | 372 | 3,020 | 88.4 |
| Aug-24 | 31.0 | 2,840 | 363 | 3,200 | 125 |
| Sep-24 | 30.2 | 2,590 | 557 | 3,150 | 83.4 |
|  |  |  |  |  |  |
| **Dry Season Average** | **31.5** | **3,350** | **262** | **3,610** | **113** |
| **Dry Season**  **Trend \*\*** | **None** | **None** | **None** | **None** | **None** |
| **Wet Season**  **Average** | **39.5** | **3,850** | **264** | **4,110** | **137** |
| **Average Annual** | **36.2** | **3,640** | **263** | **3,900** | **127** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

\*\*\* The statistical analysis does not capture the ammonia and TIN load increase associated with the 2020 dry season.

Note that the dry season average includes data from 2012 through 2024.

**Table 5-1. Discharge: CMSA Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 7.85 | 1,220 | 87.5 | 1,300 | 118 |
| Nov-12 | 6.95 | 742 | 96.3 | 838 | 88.9 |
| Dec-12 | 20.7 | 471 | 258 | 729 | 84.9 |
| Jan-13 | 8.70 | 660 | 89.3 | 749 | 71.1 |
| Feb-13 | 6.75 | 691 | 90.2 | 781 | 64.8 |
| Mar-13 | 6.45 | 573 | 165 | 738 | 87.7 |
| Apr-13 | 6.65 | 586 | 180 | 767 | 87.8 |
| May-13 | 5.30 | 692 | 65.2 | 757 | 86.1 |
| Jun-13 | 5.70 | 862 | 61.6 | 923 | 95.9 |
| Jul-13 | 5.55 | 703 | 128 | 831 | 126 |
| Aug-13 | 5.70 | 721 | 140 | 862 | 94.8 |
| Sep-13 | 5.70 | 722 | 125 | 847 | 103 |
| Oct-13 | 5.50 | 666 | 148 | 814 | 99.8 |
| Nov-13 | 6.10 | 652 | 89.5 | 741 | 73.7 |
| Dec-13 | 5.90 | 836 | 22.4 | 859 | 80.3 |
| Jan-14 | 5.65 | 810 | 32.8 | 843 | 82.9 |
| Feb-14 | 6.25 | 802 | 31.0 | 833 | 85.8 |
| Mar-14 | 7.90 | 982 | 36.5 | 1,020 | 75.0 |
| Apr-14 | 7.90 | 695 | 143 | 838 | 84.6 |
| May-14 | 5.61 | 838 | 40.6 | 878 | 76.3 |
| Jun-14 | 5.03 | 903 | 22.6 | 926 | 71.3 |
| Jul-14 | 4.80 | 752 | 41.9 | 794 | 85.1 |
| Aug-14 | 4.55 | 757 | 87.6 | 845 | 83.4 |
| Sep-14 | 4.86 | 651 | 110 | 761 | 82.0 |
| Oct-14 | 4.89 | 692 | 122 | 814 | 83.7 |
| Nov-14 | 5.99 | 678 | 110 | 788 | 84.9 |
| Dec-14 | 21.7 | 658 | 449 | 1,110 | 164 |
| Jan-15 | 6.59 | 527 | 176 | 703 | 80.1 |
| Feb-15 | 8.89 | 439 | 283 | 721 | 91.2 |
| Mar-15 | 6.03 | 539 | 169 | 708 | 91.9 |
| Apr-15 | 5.93 | 610 | 72.4 | 682 | 88.5 |
| May-15 | 5.11 | 645 | 77.0 | 722 | 81.9 |
| Jun-15 | 4.74 | 524 | 79.5 | 603 | 97.6 |
| Jul-15 | 4.58 | 607 | 106 | 713 | 89.5 |
| Aug-15 | 4.57 | 600 | 168 | 768 | 85.2 |
| Sep-15 | 4.58 | 718 | 82.6 | 800 | 92.4 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 4.56 | 636 | 91.4 | 727 | 82.1 |
| Nov-15 | 4.76 | 681 | 79.6 | 761 | 89.6 |
| Dec-15 | 7.43 | 663 | 277 | 939 | 147 |
| Jan-16 | 17.6 | 772 | 98.1 | 870 | 23.1 |
| Feb-16 | 8.59 | 438 | 296 | 733 | 72.4 |
| Mar-16 | 17.6 | 700 | 58.8 | 758 | 72.8 |
| Apr-16 | 7.55 | 575 | 238 | 813 | 90.1 |
| May-16 | 6.24 | 880 | 45.1 | 925 | 65.4 |
| Jun-16 | 5.76 | 913 | 26.8 | 940 | 92.0 |
| Jul-16 | 5.51 | 879 | 55.7 | 935 | 87.9 |
| Aug-16 | 5.67 | 1,020 | 63.8 | 1,080 | 102 |
| Sep-16 | 5.42 | 887 | 52.5 | 939 | 90.0 |
| Oct-16 | 7.05 | 880 | 120 | 999 | 97.7 |
| Nov-16 | 9.56 | 567 | 189 | 756 | 97.1 |
| Dec-16 | 15.6 | 1,120 | 154 | 1,280 | 69.0 |
| Jan-17 | 28.6 | 1,470 | 163 | 1,630 | 75.8 |
| Feb-17 | 32.1 | 999 | 141 | 1,140 | 94.4 |
| Mar-17 | 15.8 | 1,070 | 63.7 | 1,130 | 82.8 |
| Apr-17 | 14.8 | 892 | 243 | 1,130 | 114 |
| May-17 | 8.39 | 1,110 | 267 | 1,380 | 103 |
| Jun-17 | 7.62 | 1,170 | 63.5 | 1,240 | 129 |
| Jul-17 | 7.15 | 953 | 147 | 1,100 | 132 |
| Aug-17 | 7.03 | 1,000 | 132 | 1,140 | 134 |
| Sep-17 | 7.26 | 875 | 371 | 1,250 | 137 |
| Oct-17 | 6.69 | 805 | 102 | 907 | 109 |
| Nov-17 | 8.69 | 816 | 117 | 932 | 109 |
| Dec-17 | 7.54 | 720 | 261 | 982 | 107 |
| Jan-18 | 13.1 | 1,190 | 25.5 | 1,220 | 87.3 |
| Feb-18 | 8.10 | 1,060 | 18.6 | 1,080 | 89.2 |
| Mar-18 | 18.5 | 916 | 64.3 | 981 | 39.9 |
| Apr-18 | 12.7 | 736 | 222 | 957 | 101 |
| May-18 | 7.84 | 828 | 184 | 1,010 | 105 |
| Jun-18 | 7.21 | 874 | 93.3 | 967 | 103 |
| Jul-18 | 6.59 | 786 | 139 | 926 | 114 |
| Aug-18 | 6.48 | 776 | 110 | 886 | 108 |
| Sep-18 | 6.55 | 813 | 166 | 979 | 132 |
| Oct-18 | 7.06 | 1,090 | 131 | 1,220 | 143 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 8.96 | 800 | 58.5 | 859 | 109 |
| Dec-18 | 10.6 | 974 | 83.3 | 1,060 | 97.1 |
| Jan-19 | 18.6 | 1,300 | 39.5 | 1,340 | 114 |
| Feb-19 | 28.9 | 1,220 | 11.3 | 1,230 | 83.1 |
| Mar-19 | 19.8 | 1,150 | 7.27 | 1,150 | 100.0 |
| Apr-19 | 10.4 | 1,120 | 28.4 | 1,150 | 103 |
| May-19 | 11.1 | 1,050 | 31.0 | 1,080 | 75.8 |
| Jun-19 | 8.14 | 1,130 | 43.4 | 1,180 | 116 |
| Jul-19 | 7.10 | 1,030 | 13.4 | 1,050 | 115 |
| Aug-19 | 6.82 | 997 | 47.5 | 1,040 | 116 |
| Sep-19 | 6.64 | 882 | 207 | 1,090 | 119 |
| Oct-19 | 6.40 | 974 | 144 | 1,120 | 125 |
| Nov-19 | 7.12 | 1,060 | 47.6 | 1,110 | 117 |
| Dec-19 | 20.3 | 1,040 | 155 | 1,200 | 127 |
| Jan-20 | 12.6 | 1,240 | 73.8 | 1,310 | 129 |
| Feb-20 | 8.59 | 997 | 54.5 | 1,050 | 103 |
| Mar-20 | 8.54 | 1,130 | 53.4 | 1,190 | 115 |
| Apr-20 | 8.85 | 1,120 | 91.6 | 1,210 | 114 |
| May-20 | 7.88 | 1,070 | 74.6 | 1,140 | 119 |
| Jun-20 | 7.10 | 1,090 | 110 | 1,200 | 124 |
| Jul-20 | 6.90 | 1,010 | 111 | 1,120 | 129 |
| Aug-20 | 6.89 | 1,150 | 109 | 1,260 | 143 |
| Sep-20 | 6.93 | 1,000 | 118 | 1,120 | 131 |
| Oct-20 | 7.10 | 1,170 | 137 | 1,310 | 136 |
| Nov-20 | 7.19 | 1,000 | 157 | 1,160 | 130 |
| Dec-20 | 8.66 | 977 | 88.1 | 1,070 | 131 |
| Jan-21 | 10.3 | 852 | 110 | 961 | 100 |
| Feb-21 | 9.56 | 844 | 77.6 | 922 | 117 |
| Mar-21 | 8.77 | 1,130 | 65.7 | 1,190 | 128 |
| Apr-21 | 7.08 | 902 | 60.7 | 950 | 117 |
| May-21 | 6.47 | 1,070 | 20.6 | 1,090 | 129 |
| Jun-21 | 6.68 | 1,150 | 83.4 | 1,240 | 145 |
| Jul-21 | 5.67 | 924 | 163 | 1,090 | 128 |
| Aug-21 | 5.86 | 979 | 116 | 1,090 | 125 |
| Sep-21 | 5.70 | 847 | 172 | 1,020 | 138 |
| Oct-21 | 13.1 | 1,160 | 161 | 942 | 132 |
| Nov-21 | 12.4 | 773 | 138 | 912 | 134 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 21.8 | 1,020 | 44.4 | 1,070 | 122 |
| Jan-22 | 12.8 | 586 | 24.6 | 611 | 129 |
| Feb-22 | 7.80 | 951 | 9.65 | 961 | 126 |
| Mar-22 | 7.59 | 1,240 | 7.39 | 1,250 | 137 |
| Apr-22 | 8.06 | 1,190 | 12.9 | 1,200 | 136 |
| May-22 | 6.84 | 1,140 | 12.0 | 1,150 | 128 |
| Jun-22 | 6.19 | 1,120 | 25.8 | 1,150 | 138 |
| Jul-22 | 5.90 | 1,020 | 205 | 1,220 | 114 |
| Aug-22 | 5.95 | 787 | 118 | 906 | 120 |
| Sep-22 | 5.86 | 928 | 84.0 | 1,010 | 125 |
| Oct-22 | 5.73 | 926 | 72.1 | 998 | 117 |
| Nov-22 | 6.21 | 970 | 20.4 | 991 | 122 |
| Dec-22 | 14.2 | 1,060 | 34.9 | 1,090 | 126 |
| Jan-23 | 27.8 | 936 | 116 | 954 | 91.8 |
| Feb-23 | 13.3 | 967 | 58.1 | 1,030 | 104 |
| Mar-23 | 24.8 | 970 | 164 | 1,130 | 103 |
| Apr-23 | 10.6 | 1,030 | 48.3 | 1,070 | 113 |
| May-23 | 8.26 | 1,050 | 38.3 | 1,090 | 123 |
| Jun-23 | 6.93 | 938 | 21.5 | 959 | 116 |
| Jul-23 | 6.45 | 965 | 27.6 | 993 | 130 |
| Aug-23 | 6.35 | 968 | 48.4 | 1,020 | 122 |
| Sep-23 | 6.30 | 870 | 50.8 | 922 | 124 |
| Oct-23 | 6.44 | 939 | 33.3 | 973 | 125 |
| Nov-23 | 7.41 | 997 | 47.7 | 1,040 | 128 |
| Dec-23 | 12.5 | 1,110 | 35.7 | 1,150 | 103 |
| Jan-24 | 18.7 | 1,010 | 118 | 1,150 | 110 |
| Feb-24 | 21.6 | 929 | 149 | 1,070 | 113 |
| Mar-24 | 14.5 | 1,060 | 63.5 | 1,120 | 118 |
| Apr-24 | 10.2 | 1,170 | 50.3 | 1,160 | 129 |
| May-24 | 8.29 | 1,160 | 20.6 | 1,190 | 132 |
| Jun-24 | 6.74 | 1,130 | 17.5 | 1,140 | 133 |
| Jul-24 | 6.28 | 1,040 | 35.6 | 1,070 | 125 |
| Aug-24 | 6.19 | 988 | 57.0 | 1,090 | 129 |
| Sep-24 | 6.13 | 998 | 27.4 | 1,030 | 128 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **6.32** | **916** | **91.0** | **1,010** | **112** |
| **Dry Season**  **Trend\*\*** | **Up** | **Up** | **None** | **Up** | **Up** |
| **Wet Season**  **Average** | **11.3** | **897** | **107** | **997** | **103** |
| **Average Annual** | **9.24** | **905** | **100** | **1,000** | **107** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 6-1. Discharge: Port Costa Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 0.00640 | -- | -- | -- | -- |
| Nov-12 | 0.00795 | -- | -- | -- | -- |
| Dec-12 | 0.0103 | -- | -- | -- | -- |
| Jan-13 | 0.00934 | 0.0636 | -- | -- | -- |
| Feb-13 | 0.00855 | -- | -- | -- | -- |
| Mar-13 | 0.00780 | -- | -- | -- | -- |
| Apr-13 | 0.00680 | -- | -- | -- | -- |
| May-13 | 0.00555 | 0.650 | -- | -- | -- |
| Jun-13 | 0.00405 | 0.184 | -- | -- | -- |
| Jul-13 | 0.00497 | 0.124 | -- | -- | -- |
| Aug-13 | 0.00483 | -- | -- | -- | -- |
| Sep-13 | 0.00538 | -- | -- | -- | -- |
| Oct-13 | 0.00473 | -- | -- | -- | -- |
| Nov-13 | 0.00688 | -- | -- | -- | -- |
| Dec-13 | 0.00631 | 0.153 | -- | -- | -- |
| Jan-14 | 0.00720 | 0.585 | -- | -- | -- |
| Feb-14 | 0.0179 | 0.920 | -- | -- | -- |
| Mar-14 | 0.00644 | 0.179 | -- | -- | -- |
| Apr-14 | 0.00622 | 0.148 | -- | -- | -- |
| May-14 | 0.00409 | -- | -- | -- | -- |
| Jun-14 | 0.00456 | -- | -- | -- | -- |
| Jul-14 | 0.00354 | 0.0381 | -- | 0.0381 | -- |
| Aug-14 | 0.00419 | -- | -- | -- | -- |
| Sep-14 | 0.00361 | -- | -- | -- | -- |
| Oct-14 | 0.00430 | 0.195 | -- | -- | -- |
| Nov-14 | 0.00433 | 0.524 | -- | -- | -- |
| Dec-14 | 0.0111 | 0.691 | -- | -- | -- |
| Jan-15 | 0.0153 | -- | -- | -- | -- |
| Feb-15 | 0.0259 | 0.455 | -- | -- | -- |
| Mar-15 | 0.0108 | -- | -- | -- | -- |
| Apr-15 | 0.00747 | 0.0678 | -- | -- | -- |
| May-15 | 0.00695 | -- | -- | -- | -- |
| Jun-15 | 0.0103 | 0.133 | -- | -- | -- |
| Jul-15 | 0.00829 | -- | -- | -- | -- |
| Aug-15 | 0.00941 | -- | -- | -- | -- |
| Sep-15 | 0.00838 | -- | -- | -- | -- |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 0.00765 | 0.223 | 0.810 | 1.03 | 0.153 |
| Nov-15 | 0.0159 | 0.660 | -- | -- | -- |
| Dec-15 | 0.0118 | -- | -- | -- | -- |
| Jan-16 | 0.0159 | -- | -- | -- | -- |
| Feb-16 | 0.0133 | -- | -- | -- | -- |
| Mar-16 | 0.0359 | 0.618 | -- | -- | -- |
| Apr-16 | 0.0197 | 0.223 | 1.79 | 2.01 | 1.04 |
| May-16 | 0.0147 | -- | -- | -- | -- |
| Jun-16 | 0.0359 | -- | -- | -- | -- |
| Jul-16 | 0.00966 | -- | -- | -- | -- |
| Aug-16 | 0.00964 | -- | -- | -- | -- |
| Sep-16 | 0.00859 | -- | -- | -- | -- |
| Oct-16 | 0.0132 | -- | -- | -- | -- |
| Nov-16 | 0.0142 | -- | -- | -- | -- |
| Dec-16 | 0.0116 | 0.746 | 0.702 | 1.45 |  |
| Jan-17 | 0.0702 | -- | -- | -- | -- |
| Feb-17 | 0.107 | -- | -- | -- | -- |
| Mar-17 | 0.0503 | -- | -- | -- | -- |
| Apr-17 | 0.0294 | 1.11 | 1.56 | 2.67 | 0.479 |
| May-17 | 0.0166 | -- | -- | -- | -- |
| Jun-17 | 0.0156 | -- | -- | -- | -- |
| Jul-17 | 0.0142 | 0.290 | -- | -- | -- |
| Aug-17 | 0.0127 | -- | -- | -- | -- |
| Sep-17 | 0.0143 | -- | -- | -- | -- |
| Oct-17 | 0.0117 | -- | -- | -- | -- |
| Nov-17 | 0.0151 | -- | -- | -- | -- |
| Dec-17 | 0.0118 | 0.304 | 0.591 | 0.896 | 0.259 |
| Jan-18 | 0.0182 | -- | -- | -- | -- |
| Feb-18 | 0.0207 | 2.28 | 0.808 | 3.09 | 0.445 |
| Mar-18 | 0.0258 | 0.932 | -- | -- | -- |
| Apr-18 | 0.0292 | 0.618 | -- | -- | -- |
| May-18 | 0.0151 | 0.296 | -- | -- | -- |
| Jun-18 | 0.0150 | -- | -- | -- | -- |
| Jul-18 | 0.0361 | -- | -- | -- | -- |
| Aug-18 | 0.0242 | -- | -- | -- | -- |
| Sep-18 | 0.0138 | -- | -- | -- | -- |
| Oct-18 | 0.0131 | -- | -- | -- | -- |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 0.0127 | -- | -- | -- | -- |
| Dec-18 | 0.0176 | -- | -- | -- | -- |
| Jan-19 | 0.0224 | -- | -- | -- | -- |
| Feb-19 | 0.0587 | -- | -- | -- | -- |
| Mar-19 | 0.0614 | -- | -- | -- | -- |
| Apr-19 | 0.0277 | 0.775 | 0.0824 | 0.858 | 0.315 |
| May-19 | 0.0237 | -- | -- | -- | -- |
| Jun-19 | 0.0174 | 0.374 | -- | -- | -- |
| Jul-19 | 0.0128 | -- | -- | -- | -- |
| Aug-19 | 0.0100 | -- | -- | -- | -- |
| Sep-19 | 0.0106 | 0.547 | 0.203 | 0.552 | 0.138 |
| Oct-19 | 0.0110 | -- | -- | -- | -- |
| Nov-19 | 0.0141 | -- | -- | -- | -- |
| Dec-19 | 0.200 | 9.75 | -- | -- | -- |
| Jan-20 | 0.00847 | -- | -- | -- | -- |
| Feb-20 | 0.0144 | -- | -- | -- | -- |
| Mar-20 | 0.0193 | -- | -- | -- | -- |
| Apr-20 | 0.0141 | 0.444 | 0.378 | 0.746 | 0.968 |
| May-20 | 0.0123 | -- | -- | -- | -- |
| Jun-20 | 0.0152 | -- | -- | -- | -- |
| Jul-20 | 0.0170 | 0.749 | 0.769 | 2.15 | 0.587 |
| Aug-20 | 0.0144 | -- | -- | -- | -- |
| Sep-20 | 0.0155 | -- | -- | -- | -- |
| Oct-20 | 0.0148 | 1.51 | -- | -- | -- |
| Nov-20 | 0.0127 | -- | -- | -- | -- |
| Dec-20 | 0.0165 | -- | -- | -- | -- |
| Jan-21 | 0.0165 | -- | -- | -- | -- |
| Feb-21 | 0.0214 | 0.715 | -- | -- | -- |
| Mar-21 | 0.0187 | -- | -- | -- | -- |
| Apr-21 | 0.0150 | 0.511 | 0.776 | 1.29 | 0.200 |
| May-21 | 0.0139 | -- | -- | -- | -- |
| Jun-21 | 0.0113 | 0.546 | -- | -- | -- |
| Jul-21 | 0.0110 | 0.680 | -- | -- | -- |
| Aug-21 | 0.0106 | -- | -- | -- | -- |
| Sep-21 | 0.0120 | -- | -- | -- | -- |
| Oct-21 | 0.0204 | 0.0118 |  |  |  |
| Nov-21 | 0.0165 |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 0.0359 |  |  |  |  |
| Jan-22 | 0.0211 | 0.550 |  |  |  |
| Feb-22 | 0.0191 |  |  |  |  |
| Mar-22 | 0.0169 |  |  |  |  |
| Apr-22 | 0.0163 | 1.36 | 0.744 | 2.22 | 0.289 |
| May-22 | 0.0161 |  |  |  |  |
| Jun-22 | 0.0149 |  |  |  |  |
| Jul-22 | 0.0186 | 0.905 |  |  |  |
| Aug-22 | 0.0213 | 0.144 |  |  |  |
| Sep-22 | 0.0231 |  |  |  |  |
| Oct-22 | 0.0160 | 0.334 | 1.28 | 1.61 | 0.305 |
| Nov-22 | 0.0157 | 2.11 |  |  |  |
| Dec-22 | 0.0256 |  |  |  |  |
| Jan-23 | 0.108 |  |  |  |  |
| Feb-23 | 0.0514 |  |  |  |  |
| Mar-23 | 0.104 | 0.506 |  |  |  |
| Apr-23 | 0.0520 |  |  |  |  |
| May-23 | 0.0363 |  | 0.591 |  | 0.00366 |
| Jun-23 | 0.0228 | 0.583 |  |  |  |
| Jul-23 | 0.0189 | 0.522 |  |  |  |
| Aug-23 | 0.0186 |  |  |  |  |
| Sep-23 | 0.0216 |  |  |  |  |
| Oct-23 | 0.0242 |  |  |  |  |
| Nov-23 | 0.0239 | 0.573 | 0.477 |  | 0.00958 |
| Dec-23 | 0.0314 |  |  |  |  |
| Jan-24 | 0.0400 |  |  |  |  |
| Feb-24 | 0.0674 |  |  |  |  |
| Mar-24 | 0.0671 | 1.25 |  |  |  |
| Apr-24 | 0.0380 |  |  |  |  |
| May-24 | 0.0213 |  |  |  |  |
| Jun-24 | 0.0145 |  |  |  |  |
| Jul-24 | 0.0162 |  |  |  |  |
| Aug-24 |  |  |  |  |  |
| Sep-24 | 0.0148 |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **0.0141** | **0.338** | **0.313** | **0.457** | **0.146** |
| **Dry Season Trend \*\*,\*\*\*** | **Up** | **Up** | **None** | **None** | **None** |
| **Wet Season**  **Average** | **0.0257** | **0.917** | **0.833** | **1.62** | **0.406** |
| **Average Annual** | **0.0209** | **0.762** | **0.770** | **1.47** | **0.371** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis. There is insufficient data for a trending analysis for nutrients other than Ammonia.

\*\*\* Insufficient sampling to perform trending analysis.

**Table 7-2. Discharge: Delta Diablo Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia\*** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 6.60 | 618 | 1,200.0 | 1,820 | 24.9 |
| Nov-12 | 6.50 | 677 | 1,350.0 | 2,030 | 40.9 |
| Dec-12 | 8.60 | 872 | 991.0 | 1,860 | 43.2 |
| Jan-13 | 7.05 | 694 | 967.0 | 1,660 | 27.2 |
| Feb-13 | 6.73 | 760 | 1,080.0 | 1,840 | 29.7 |
| Mar-13 | 6.35 | 697 | 582.0 | 1,280 | 28.7 |
| Apr-13 | 9.20 | 1,220 | 437.0 | 1,660 | 40.2 |
| May-13 | 7.30 | 850 | 1,140.0 | 1,990 | 27.6 |
| Jun-13 | 7.90 | 948 | 995.0 | 1,940 | 39.4 |
| Jul-13 | 4.10 | 429 | 868.0 | 1,300 | 20.1 |
| Aug-13 | 6.00 | 697 | 850.0 | 1,550 | 26.7 |
| Sep-13 | 5.65 | 619 | 767.0 | 1,390 | 24.7 |
| Oct-13 | 6.40 | 750 | 812.0 | 1,560 | 31.5 |
| **Month, Year** | **Flow** | **Ammonia\*** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-13 | 7.10 | 824 | 778.0 | 1,600 | 28.3 |
| Dec-13 | 6.50 | 776 | 963.0 | 1,740 | 28.9 |
| Jan-14 | 5.20 | 573 | 990.0 | 1,560 | 22.5 |
| Feb-14 | 6.90 | 966 | 385.0 | 1,350 | 27.8 |
| Mar-14 | 6.67 | 925 | 559.0 | 1,480 | 29.6 |
| Apr-14 | 6.00 | 693 | 767.0 | 1,460 | 20.8 |
| May-14 | 5.65 | 690 | 596.0 | 1,290 | 31.8 |
| Jun-14 | 7.00 | 1,020 | 498.0 | 1,510 | 38.0 |
| Jul-14 | 5.34 | 651 | 982.0 | 1,630 | 19.0 |
| Aug-14 | 4.97 | 524 | 1,020.0 | 1,540 | 21.5 |
| Sep-14 | 5.66 | 490 | 942.0 | 1,430 | 25.7 |
| Oct-14 | 7.32 | 1,000 | 725.0 | 1,730 | 52.7 |
| Nov-14 | 6.94 | 761 | 633.0 | 1,390 | 28.4 |
| Dec-14 | 9.56 | 1,070 | 488.0 | 1,560 | 36.8 |
| Jan-15 | 7.44 | 894 | 595.0 | 1,490 | 35.9 |
| Feb-15 | 9.91 | 1,310 | 538.0 | 1,850 | 47.3 |
| Mar-15 | 9.50 | 1,270 | 341.0 | 1,610 | 58.8 |
| Apr-15 | 8.40 | 1,290 | 167.0 | 1,450 | 41.9 |
| May-15 | 7.97 | 1,230 | 73.8 | 1,300 | 33.0 |
| Jun-15 | 5.13 | 609 | 142.0 | 751 | 36.8 |
| Jul-15 | 5.22 | 583 | 92.7 | 676 | 25.4 |
| Aug-15 | 6.00 | 599 | 1.4 | 601 | 26.2 |
| Sep-15 | 5.15 | 228 | 787.0 | 1,010 | 17.6 |
| Oct-15 | 4.99 | 322 | 1,010.0 | 1,330 | 16.2 |
| Nov-15 | 7.13 | 771 | 875.0 | 1,650 | 28.6 |
| Dec-15 | 7.07 | 954 | 828.0 | 1,780 | 25.7 |
| Jan-16 | 8.73 | 975 | 1,110.0 | 2,090 | 29.0 |
| Feb-16 | 7.83 | 951 | 834.0 | 1,780 | 31.8 |
| Mar-16 | 11.40 | 1,310 | 256.0 | 1,570 | 47.0 |
| Apr-16 | 8.23 | 905 | 141.0 | 1,050 | 33.6 |
| May-16 | 8.18 | 940 | 28.2 | 968 | 37.2 |
| Jun-16 | 5.62 | 921 | 64.4 | 985 | 29.1 |
| Jul-16 | 5.51 | 593 | 59.9 | 653 | 21.6 |
| Aug-16 | 5.11 | 699 | 102.0 | 801 | 16.2 |
| Sep-16 | 6.76 | 1,140 | 89.9 | 1,230 | 36.4 |
| Oct-16 | 7.83 | 1,040 | 60.0 | 1,100 | 30.2 |
| Nov-16 | 9.59 | 1,300 | 43.5 | 1,340 | 49.5 |
| **Month, Year** | **Flow** | **Ammonia\*** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-16 | 8.50 | 1,270 | 36.7 | 1,310 | 37.9 |
| Jan-17 | 10.70 | 1,190 | 41.1 | 1,230 | 33.5 |
| Feb-17 | 14.10 | 1,720 | 18.9 | 1,730 | 62.4 |
| Mar-17 | 12.10 | 1,810 | 22.5 | 1,840 | 68.4 |
| Apr-17 | 11.70 | 2,100 | 19.5 | 2,120 | 80.2 |
| May-17 | 10.30 | 1,350 | 19.5 | 1,370 | 59.6 |
| Jun-17 | 8.92 | 1,440 | 34.7 | 1,470 | 45.8 |
| Jul-17 | 7.95 | 1,350 | 22.1 | 1,370 | 47.0 |
| Aug-17 | 7.79 | 1,100 | 34.7 | 1,130 | 44.8 |
| Sep-17 | 9.07 | 1,380 | 23.8 | 1,410 | 58.1 |
| Oct-17 | 9.63 | 1,440 | 32.0 | 1,470 | 48.5 |
| Nov-17 | 10.60 | 1,490 | 11.1 | 1,500 | 158.0 |
| Dec-17 | 10.10 | 1,470 | 12.8 | 1,480 | 50.6 |
| Jan-18 | 8.64 | 1,360 | 45.8 | 1,400 | 39.6 |
| Feb-18 | 10.00 | 1,910 | 21.7 | 1,940 | 45.3 |
| Mar-18 | 11.10 | 1,720 | 26.3 | 1,750 | 47.6 |
| Apr-18 | 11.40 | 1,850 | 23.6 | 1,880 | 81.8 |
| May-18 | 10.20 | 1,770 | 17.6 | 1,790 | 75.1 |
| Jun-18 | 8.47 | 1,650 | 25.6 | 1,670 | 101.0 |
| Jul-18 | 5.27 | 1,290 | 82.6 | 1,170 | 25.4 |
| Aug-18 | 6.24 | 888 | 69.2 | 957 | 23.6 |
| Sep-18 | 6.98 | 1,210 | 40.8 | 1,250 | 30.6 |
| Oct-18 | 6.08 | 1,270 | 104.0 | 1,370 | 33.8 |
| Nov-18 | 7.76 | 1,510 | 26.2 | 1,530 | 50.3 |
| Dec-18 | 8.23 | 1,180 | 43.2 | 1,230 | 28.7 |
| Jan-19 | 9.64 | 1,760 | 71.9 | 1,860 | 37.7 |
| Feb-19 | 10.90 | 1,750 | 36.2 | 1,790 | 44.6 |
| Mar-19 | 10.10 | 1,620 | 16.6 | 1,640 | 37.5 |
| Apr-19 | 10.70 | 2,040 | 25.3 | 2,070 | 43.6 |
| May-19 | 10.80 | 1,760 | 27.8 | 1,810 | 66.3 |
| Jun-19 | 9.49 | 1,480 | 25.0 | 1,210 | 48.0 |
| Jul-19 | 7.31 | 1,210 | 61.8 | 1,270 | 49.3 |
| Aug-19 | 6.87 | 1,150 | 58.2 | 1,210 | 37.4 |
| Sep-19 | 6.91 | 977 | 82.2 | 1,060 | 34.0 |
| Oct-19 | 6.74 | 938 | 13.6 | 952 | 88.1 |
| Nov-19 | 7.24 | 730 | 86.9 | 817 | 22.0 |
| Dec-19 | 8.71 | 1,540 | 42.7 | 1,580 | 49.6 |
| **Month, Year** | **Flow** | **Ammonia\*** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Jan-20 | 8.65 | 1,410 | 46.7 | 1,450 | 34.3 |
| Feb-20 | 8.54 | 1,370 | 42.0 | 1,410 | 46.1 |
| Mar-20 | 8.77 | 1,340 | 39.3 | 1,380 | 49.8 |
| Apr-20 | 9.40 | 1,740 | 44.8 | 1,790 | 66.0 |
| May-20 | 10.80 | 1,800 | 33.2 | 1,830 | 87.8 |
| Jun-20 | 8.28 | 1,280 | 41.3 | 1,320 | 73.3 |
| Jul-20 | 7.50 | 1,170 | 35.2 | 1,210 | 52.7 |
| Aug-20 | 6.62 | 982 | 72.9 | 1,050 | 17.2 |
| Sep-20 | 6.91 | 1,140 | 54.5 | 1,200 | 16.3 |
| Oct-20 | 6.96 | 1,030 | 37.6 | 1,070 | 26.4 |
| Nov-20 | 7.61 | 1,230 | 48.3 | 1,280 | 41.8 |
| Dec-20 | 8.30 | 1,440 | 40.4 | 1,480 | 45.1 |
| Jan-21 | 8.69 | 1,440 | 43.3 | 1,480 | 37.9 |
| Feb-21 | 8.12 | 1,640 | 44.8 | 1,690 | 50.1 |
| Mar-21 | 8.19 | 1,150 | 31.5 | 1,180 | 38.2 |
| Apr-21 | 8.61 | 1,400 | 42.1 | 1,450 | 43.8 |
| May-21 | 8.03 | 1,010 | 34.0 | 1,100 | 33.8 |
| Jun-21 | 6.74 | 921 | 142.0 | 1,170 | 46.4 |
| Jul-21 | 5.32 | 930 | 79.7 | 1,010 | 19.8 |
| Aug-21 | 5.61 | 644 | 197.0 | 841 | 9.4 |
| Sep-21 | 6.73 | 685 | 82.4 | 768 | 10.4 |
| Oct-21 | 7.16 | 769 | 9.7 | 778 | 20.4 |
| Nov-21 | 8.33 | 1,160 | 47.3 | 1,200 | 20.0 |
| Dec-21 | 9.87 | 1,310 | 27.6 | 1,340 | 29.5 |
| Jan-22 | 8.99 | 1,510 | 10.7 | 1,520 | 27.9 |
| Feb-22 | 8.75 | 1,170 | 9.9 | 1,180 | 19.2 |
| Mar-22 | 9.48 | 1,330 | 21.6 | 1,350 | 31.4 |
| Apr-22 | 7.96 | 1,120 | 33.2 | 1,160 | 31.4 |
| May-22 | 7.99 | 940 | 41.9 | 982 | 24.7 |
| Jun-22 | 6.87 | 1,220 | 31.3 | 1,250 | 29.5 |
| Jul-22 | 6.62 | 786 | 105.0 | 882 | 17.3 |
| Aug-22 | 5.91 | 711 | 164.0 | 875 | 14.2 |
| Sep-22 | 6.21 | 578 | 157.0 | 734 | 7.7 |
| Oct-22 | 6.62 | 907 | 59.3 | 967 | 12.3 |
| Nov-22 | 8.03 | 809 | 68.3 | 877 | 11.4 |
| Dec-22 | 8.24 | 1,230 | 34.7 | 1,270 | 20.3 |
| Jan-23 | 12.70 | 1,320 | 26.4 | 1,350 | 56.1 |
| **Month, Year** | **Flow** | **Ammonia\*** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Feb-23 | 9.34 | 1,540 | 57.6 | 1,600 | 38.8 |
| Mar-23 | 11.40 | 1,880 | 68.2 | 1,950 | 33.3 |
| Apr-23 | 9.81 | 1,710 | 24.7 | 1,730 | 57.1 |
| May-23 | 11.10 | 1,820 | 16.5 | 1,840 | 77.6 |
| Jun-23 | 9.72 | 980 | 25.8 | 1,010 | 45.0 |
| Jul-23 | 6.24 | 1,070 | 24.1 | 1,090 | 42.3 |
| Aug-23 | 5.88 | 1,010 | 48.3 | 1,060 | 31.2 |
| Sep-23 | 9.11 | 969 | 19.8 | 988 | 46.3 |
| Oct-23 | 7.50 | 937 | 34.1 | 971 | 20.2 |
| Nov-23 | 7.64 | 1,300 | 35.9 | 1,340 | 25.1 |
| Dec-23 | 8.03 | 1,390 | 42.6 | 1,430 | 29.1 |
| Jan-24 | 7.75 | 1,250 | 48.8 | 1,300 | 35.6 |
| Feb-24 | 9.30 | 1,480 | 35.4 | 1,520 | 38.8 |
| Mar-24 | 9.86 | 1,070 | 37.3 | 1,100 | 24.8 |
| Apr-24 | 11.9 | 1,640 | 18.1 | 1,660 | 66.3 |
| May-24 | 10.1 | 1,840 | 14.9 | 1,860 | 89.9 |
| Jun-24 | 8.69 | 1,600 | 11.1 | 1,610 | 61.7 |
| Jul-24 | 5.39 | 990 | 66.0 | 1,060 | 10.3 |
| Aug-24 | 6.88 | 1,010 | 130 | 1,140 | 7.11 |
| Sep-24 | 8.31 | 881 | 47.2 | 928 | 9.23 |
|  |  |  |  |  |  |
| **Dry Season Average** | **7.17** | **1,020** | **207** | **1,220** | **36.4** |
| **Dry Season Trend \*\*\*** | **Up** | **Up** | **Down** | **None** | **None** |
| **Wet Season**  **Average** | **8.60** | **1,220** | **268** | **1,490** | **39.7** |
| **Average Annual** | **8.01** | **1,140** | **242** | **1,380** | **38.3** |

\* Delta Diablo typically samples each month more than the required frequency for ammonia. This dataset includes this additional sampling.

\*\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 8-2. Discharge: EBDA Monthly Flows and Loads1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 54.5 | 6,160 | 568 | 6,730 | 462 |
| Nov-12 | 74.3 | 7,900 | 1,230 | 9,130 | 710 |
| Dec-12 | 67.5 | 6,550 | 1,150 | 7,700 | 621 |
| Jan-13 | 72.9 | 7,900 | 1,460 | 9,360 | 606 |
| Feb-13 | 70.7 | 7,490 | 1,390 | 8,880 | 601 |
| Mar-13 | 67.6 | 7,730 | 1,210 | 8,940 | 613 |
| Apr-13 | 60.6 | 6,690 | 1,240 | 7,930 | 469 |
| May-13 | 58.5 | 6,340 | 1,220 | 7,560 | 431 |
| Jun-13 | 54.5 | 6,400 | 719 | 7,120 | 459 |
| Jul-13 | 53.3 | 5,670 | 953 | 6,620 | 493 |
| Aug-13 | 54.5 | 6,540 | 763 | 7,300 | 494 |
| Sep-13 | 57.5 | 6,520 | 750 | 7,270 | 575 |
| Oct-13 | 53.4 | 5,990 | 715 | 6,700 | 425 |
| Nov-13 | 66.5 | 8,270 | 567 | 8,840 | 621 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-13 | 70.7 | 7,740 | 1,220 | 8,960 | 654 |
| Jan-14 | 60.6 | 7,530 | 789 | 8,320 | 526 |
| Feb-14 | 70.9 | 8,260 | 1,150 | 9,410 | 616 |
| Mar-14 | 62.3 | 7,400 | 986 | 8,380 | 616 |
| Apr-14 | 63.5 | 6,430 | 966 | 7,390 | 480 |
| May-14 | 50.3 | 6,550 | 873 | 7,420 | 499 |
| Jun-14 | 51.2 | 6,410 | 660 | 7,070 | 465 |
| Jul-14 | 50.7 | 6,730 | 649 | 7,380 | 456 |
| Aug-14 | 50.2 | 6,560 | 534 | 7,090 | 570 |
| Sep-14 | 51.5 | 6,240 | 765 | 7,000 | 481 |
| Oct-14 | 50.6 | 6,780 | 795 | 7,570 | 470 |
| Nov-14 | 60.7 | 7,740 | 2,070 | 9,810 | 520 |
| Dec-14 | 84.9 | 7,470 | 1,520 | 8,990 | 821 |
| Jan-15 | 65.9 | 7,770 | 1,180 | 8,950 | 476 |
| Feb-15 | 70.4 | 7,520 | 1,080 | 8,600 | 446 |
| Mar-15 | 62.8 | 7,720 | 1,050 | 8,770 | 479 |
| Apr-15 | 58.0 | 6,820 | 948 | 7,770 | 399 |
| May-15 | 55.2 | 7,340 | 874 | 8,210 | 517 |
| Jun-15 | 51.9 | 7,220 | 667 | 7,880 | 569 |
| Jul-15 | 48.8 | 6,970 | 540 | 7,510 | 448 |
| Aug-15 | 50.0 | 7,130 | 594 | 7,730 | 429 |
| Sep-15 | 50.3 | 7,410 | 609 | 8,020 | 439 |
| Oct-15 | 52.8 | 7,320 | 564 | 7,880 | 452 |
| Nov-15 | 61.2 | 8,440 | 1,080 | 9,530 | 552 |
| Dec-15 | 66.1 | 7,790 | 1,270 | 9,070 | 529 |
| Jan-16 | 74.4 | 7,550 | 1,660 | 9,200 | 543 |
| Feb-16 | 65.4 | 8,710 | 1,450 | 10,200 | 586 |
| Mar-16 | 79.6 | 7,710 | 1,450 | 9,170 | 676 |
| Apr-16 | 65.8 | 7,310 | 1,260 | 8,580 | 539 |
| May-16 | 57.7 | 6,620 | 972 | 7,590 | 550 |
| Jun-16 | 53.5 | 6,480 | 845 | 7,330 | 545 |
| Jul-16 | 51.2 | 6,650 | 763 | 7,410 | 562 |
| Aug-16 | 51.0 | 6,310 | 608 | 6,920 | 520 |
| Sep-16 | 53.3 | 7,040 | 916 | 7,960 | 552 |
| Oct-16 | 55.3 | 5,600 | 802 | 6,410 | 527 |
| Nov-16 | 64.5 | 8,170 | 1,040 | 9,200 | 736 |
| Dec-16 | 70.9 | 9,140 | 1,600 | 10,700 | 845 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Jan-17 | 95.3 | 9,290 | 819 | 10,100 | 803 |
| Feb-17 | 103 | 7,560 | 1,600 | 9,160 | 672 |
| Mar-17 | 85.5 | 8,360 | 1,540 | 9,910 | 687 |
| Apr-17 | 77.1 | 8,440 | 1,220 | 9,670 | 767 |
| May-17 | 61.0 | 6,960 | 905 | 7,860 | 552 |
| Jun-17 | 54.1 | 6,460 | 617 | 7,080 | 506 |
| Jul-17 | 50.0 | 6,200 | 797 | 7,000 | 559 |
| Aug-17 | 50.5 | 5,870 | 638 | 6,500 | 580 |
| Sep-17 | 49.6 | 5,790 | 467 | 6,260 | 466 |
| Oct-17 | 55.0 | 7,280 | 559 | 7,830 | 528 |
| Nov-17 | 64.1 | 8,280 | 1,130 | 9,410 | 608 |
| Dec-17 | 60.3 | 7,850 | 767 | 8,620 | 550 |
| Jan-18 | 67.7 | 9,420 | 937 | 10,400 | 529 |
| Feb-18 | 60.2 | 8,010 | 785 | 8,800 | 485 |
| Mar-18 | 72.4 | 8,550 | 1,110 | 9,660 | 615 |
| Apr-18 | 71.9 | 7,980 | 1,370 | 9,360 | 569 |
| May-18 | 59.5 | 7,620 | 972 | 8,590 | 497 |
| Jun-18 | 55.2 | 7,620 | 545 | 8,160 | 461 |
| Jul-18 | 51.8 | 7,120 | 686 | 7,850 | 498 |
| Aug-18 | 52.8 | 7,190 | 415 | 7,490 | 533 |
| Sep-18 | 55.1 | 7,040 | 942 | 8,330 | 535 |
| Oct-18 | 56.3 | 7,240 | 849 | 7,720 | 514 |
| Nov-18 | 61.3 | 7,210 | 647 | 8,130 | 506 |
| Dec-18 | 66.5 | 8,590 | 810 | 9,400 | 577 |
| Jan-19 | 72.2 | 7,740 | 777 | 8,520 | 544 |
| Feb-19 | 88.5 | 9,000 | 1,430 | 10,700 | 483 |
| Mar-19 | 84.6 | 8,080 | 1,120 | 9,390 | 465 |
| Apr-19 | 69.1 | 7,960 | 1,110 | 9,570 | 549 |
| May-19 | 63.1 | 7,690 | 872 | 8,490 | 497 |
| Jun-19 | 55.9 | 6,930 | 665 | 7,510 | 476 |
| Jul-19 | 51.9 | 7,610 | 473 | 8,130 | 648 |
| Aug-19 | 53.9 | 7,090 | 523 | 8,000 | 576 |
| Sep-19 | 56.9 | 7,000 | 548 | 7,280 | 577 |
| Oct-19 | 57.6 | 7,700 | 629 | 8,510 | 613 |
| Nov-19 | 62.6 | 7,690 | 722 | 8,360 | 488 |
| Dec-19 | 69.7 | 9,220 | 823 | 10,000 | 614 |
| Jan-20 | 69.9 | 10,500 | 667 | 11,700 | 652 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Feb-20 | 66.5 | 8,440 | 804 | 10,000 | 571 |
| Mar-20 | 68.6 | 9,050 | 483 | 9,540 | 572 |
| Apr-20 | 68.2 | 10,000 | 745 | 10,800 | 531 |
| May-20 | 59.3 | 8,200 | 843 | 9,050 | 607 |
| Jun-20 | 55.9 | 7,310 | 602 | 8,180 | 519 |
| Jul-20 | 54.7 | 7,160 | 663 | 7,820 | 623 |
| Aug-20 | 54.9 | 5,680 | 1,040 | 6,720 | 621 |
| Sep-20 | 56.9 | 5,780 | 956 | 6,730 | 590 |
| Oct-20 | 57.7 | 6,410 | 779 | 7,190 | 694 |
| Nov-20 | 63.2 | 6,740 | 1,100 | 7,840 | 630 |
| Dec-20 | 64.5 | 7,000 | 868 | 7,870 | 644 |
| Jan-21 | 64.5 | 7,560 | 1,310 | 8,880 | 636 |
| Feb-21 | 69.2 | 7,750 | 1,430 | 9,170 | 626 |
| Mar-21 | 67.5 | 7,810 | 1,280 | 9,090 | 630 |
| Apr-21 | 60.0 | 6,960 | 1,180 | 8,140 | 640 |
| May-21 | 56.4 | 5,770 | 1,200 | 6,930 | 511 |
| Jun-21 | 54.7 | 6,200 | 826 | 7,020 | 692 |
| Jul-21 | 53.7 | 5,880 | 919 | 6,800 | 815 |
| Aug-21 | 54.9 | 5,650 | 913 | 6,560 | 534 |
| Sep-21 | 56.0 | 6,260 | 775 | 7,040 | 583 |
| Oct-21 | 63.9 | 6,720 | 840 | 7,560 | 599 |
| Nov-21 | 67.5 | 7,720 | 1,270 | 8,990 | 826 |
| Dec-21 | 80.4 | 7,980 | 1,150 | 9,130 | 749 |
| Jan-22 | 72.0 | 8,940 | 866 | 9,800 | 670 |
| Feb-22 | 64.4 | 8,010 | 1,050 | 9,060 | 551 |
| Mar-22 | 62.5 | 7,120 | 990 | 8,110 | 536 |
| Apr-22 | 63.7 | 6,670 | 979 | 7,650 | 517 |
| May-22 | 58.4 | 7,150 | 838 | 7,990 | 514 |
| Jun-22 | 53.7 | 5,920 | 541 | 6,460 | 555 |
| Jul-22 | 52.5 | 5,840 | 548 | 6,390 | 623 |
| Aug-22 | 52.7 | 6,270 | 791 | 7,060 | 546 |
| Sep-22 | 52.9 | 5,790 | 765 | 6,560 | 548 |
| Oct-22 | 56.6 | 6,480 | 701 | 7,180 | 722 |
| Nov-22 | 63.6 | 6,200 | 851 | 7,050 | 606 |
| Dec-22 | 75.8 | 7,300 | 948 | 8,240 | 539 |
| Jan-23 | 110 | 10,400 | 947 | 11,400 | 697 |
| Feb-23 | 78.4 | 7,890 | 1,050 | 9,230 | 423 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Mar-23 | 104 | 8,510 | 1,300 | 9,810 | 561 |
| Apr-23 | 73.7 | 6,960 | 1,240 | 8,200 | 465 |
| May-23 | 68.0 | 7,710 | 1,140 | 8,850 | 658 |
| Jun-23 | 60.7 | 6,400 | 885 | 7,290 | 559 |
| Jul-23 | 54.1 | 6,120 | 833 | 6,960 | 499 |
| Aug-23 | 55.5 | 6,230 | 675 | 6,910 | 602 |
| Sep-23 | 57.0 | 5,880 | 749 | 6,630 | 600 |
| Oct-23 | 58.7 | 6,600 | 988 | 7,510 | 553 |
| Nov-23 | 62.8 | 7,060 | 901 | 7,960 | 535 |
| Dec-23 | 66.5 | 7,910 | 658 | 8,570 | 516 |
| Jan-24 | 81.5 | 8,390 | 1,440 | 9,840 | 684 |
| Feb-24 | 88.6 | 8,210 | 1,410 | 9,620 | 646 |
| Mar-24 | 77.3 | 7,120 | 1,690 | 8,810 | 592 |
| Apr-24 | 72.0 | 6,620 | 1,450 | 7,740 | 538 |
| May-24 | 64.8 | 6,700 | 1,340 | 8,040 | 644 |
| Jun-24 | 57.5 | 6,580 | 869 | 7,450 | 624 |
| Jul-24 | 52.7 | 5,510 | 768 | 6,450 | 626 |
| Aug-24 | 55.1 | 5,520 | 1,120 | 6,640 | 624 |
| Sep-24 | 56.5 | 5,580 | 1,030 | 6,610 | 526 |
| **Dry Season Average** | **54.8** | **6,570** | **783** | **7,370** | **548** |
| **Dry Season**  **Trend \*\*** | **Up** | **None** | **None** | **None** | **Up** |
| **Wet Season**  **Average** | **68.9** | **7,740** | **1,070** | **8,830** | **585** |
| **Average Annual** | **63.0** | **7,250** | **948** | **8,220** | **569** |

1 After October 1, 2023, loads are calculated with 1/2 of the method detection limit if non-detect measurements are included. Prior to October 1, 2023, loads were calculated with the provided method detection limit if non-detect values were included.

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 9-2. Discharge: EBMUD Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia \*** | **Nitrate + Nitrite \*** | **TIN \*,\*\*** | **Total P \*** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 50.5 | 8,120 | 756 | 8,880 | 752 |
| Nov-12 | 81.5 | 10,000 | 1,770 | 11,800 | 1,550 |
| Dec-12 | 86.0 | 5,710 | 1,690 | 7,400 | 854 |
| Jan-13 | 59.0 | 8,290 | 1,370 | 9,660 | 829 |
| Feb-13 | 54.5 | 7,640 | 1,120 | 8,760 | 891 |
| Mar-13 | 61.5 | 8,800 | 1,240 | 10,000 | 1,100 |
| Apr-13 | 56.0 | 8,110 | 1,090 | 9,210 | 794 |
| May-13 | 50.5 | 6,800 | 996 | 7,800 | 832 |
| Jun-13 | 50.5 | 8,640 | 1,050 | 9,680 | 683 |
| Jul-13 | 49.0 | 8,120 | 767 | 8,880 | 389 |
| Aug-13 | 51.0 | 9,200 | 771 | 9,970 | 675 |
| Sep-13 | 49.0 | 7,380 | 858 | 8,230 | 762 |
| Oct-13 | 47.0 | 7,100 | 1,170 | 8,270 | 681 |
| Nov-13 | 65.5 | 8,820 | 847 | 9,670 | 958 |
| Dec-13 | 50.5 | 9,150 | 1,380 | 10,500 | 859 |
| Jan-14 | 46.5 | 6,550 | 1,220 | 7,770 | 711 |
| **Month, Year** | **Flow** | **Ammonia \*** | **Nitrate + Nitrite \*** | **TIN \*,\*\*** | **Total P \*** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Feb-14 | 86.5 | 9,020 | 2,150 | 11,200 | 1,200 |
| Mar-14 | 68.5 | 9,200 | 2,090 | 11,300 | 1,270 |
| Apr-14 | 75.0 | 7,880 | 1,340 | 9,220 | 874 |
| May-14 | 49.0 | 8,910 | 277 | 9,190 | 671 |
| Jun-14 | 48.5 | 8,990 | 509 | 9,500 | 551 |
| Jul-14 | 46.1 | 7,610 | 444 | 8,050 | 691 |
| Aug-14 | 45.2 | 8,640 | 749 | 9,390 | 658 |
| Sep-14 | 46.5 | 8,320 | 927 | 9,240 | 771 |
| Oct-14 | 46.7 | 7,810 | 992 | 8,800 | 737 |
| Nov-14 | 48.7 | 8,230 | 574 | 8,800 | 742 |
| Dec-14 | 96.2 | 7,910 | 2,060 | 9,970 | 1,280 |
| Jan-15 | 51.5 | 9,660 | 392 | 10,100 | 740 |
| Feb-15 | 59.1 | 8,390 | 623 | 9,010 | 816 |
| Mar-15 | 49.0 | 8,770 | 679 | 9,450 | 736 |
| Apr-15 | 48.9 | 8,940 | 765 | 9,710 | 693 |
| May-15 | 44.8 | 9,590 | 479 | 10,100 | 516 |
| Jun-15 | 44.2 | 9,420 | 664 | 10,100 | 854 |
| Jul-15 | 42.9 | 8,620 | 708 | 9,320 | 658 |
| Aug-15 | 42.7 | 7,600 | 652 | 8,260 | 326 |
| Sep-15 | 43.1 | 8,630 | 570 | 9,200 | 526 |
| Oct-15 | 43.0 | 8,200 | 247 | 8,450 | 887 |
| Nov-15 | 44.6 | 8,820 | 543 | 9,370 | 772 |
| Dec-15 | 55.8 | 8,630 | 624 | 9,260 | 769 |
| Jan-16 | 79.5 | 8,700 | 1,170 | 9,880 | 709 |
| Feb-16 | 52.4 | 10,200 | 259 | 10,500 | 948 |
| Mar-16 | 85.0 | 11,900 | 457 | 12,400 | 966 |
| Apr-16 | 53.7 | 9,210 | 557 | 9,770 | 814 |
| May-16 | 47.3 | 8,130 | 595 | 8,730 | 535 |
| Jun-16 | 45.0 | 8,730 | 400 | 9,130 | 905 |
| Jul-16 | 44.6 | 8,650 | 629 | 9,280 | 906 |
| Aug-16 | 45.2 | 8,400 | 458 | 8,860 | 866 |
| Sep-16 | 45.0 | 8,500 | 309 | 8,810 | 852 |
| Oct-16 | 50.6 | 8,740 | 340 | 9,080 | 583 |
| Nov-16 | 51.8 | 8,720 | 554 | 9,270 | 600 |
| Dec-16 | 68.8 | 10,700 | 494 | 11,200 | 422 |
| Jan-17 | 112 | 9,290 | 953 | 10,200 | 393 |
| Feb-17 | 118 | 9,670 | 669 | 10,300 | 695 |
| **Month, Year** | **Flow** | **Ammonia \*** | **Nitrate + Nitrite \*** | **TIN \*,\*\*** | **Total P \*** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Mar-17 | 80.0 | 9,080 | 640 | 9,720 | 438 |
| Apr-17 | 70.7 | 9,840 | 463 | 10,300 | 112 |
| May-17 | 52.1 | 9,110 | 357 | 9,470 | 277 |
| Jun-17 | 48.4 | 9,820 | 423 | 10,200 | 622 |
| Jul-17 | 46.6 | 9,140 | 555 | 9,690 | 677 |
| Aug-17 | 46.5 | 8,770 | 511 | 9,280 | 698 |
| Sep-17 | 47.0 | 9,870 | 243 | 10,100 | 945 |
| Oct-17 | 45.4 | 9,320 | 742 | 10,100 | 898 |
| Nov-17 | 52.5 | 12,800 | 867 | 13,600 | 1,710 |
| Dec-17 | 46.2 | 9,550 | 593 | 10,100 | 1,020 |
| Jan-18 | 62.3 | 11,000 | 303 | 11,300 | 1,200 |
| Feb-18 | 49.0 | 9,360 | 458 | 9,820 | 1,000 |
| Mar-18 | 72.5 | 10,700 | 945 | 11,700 | 1,110 |
| Apr-18 | 67.1 | 9,700 | 606 | 10,300 | 1,100 |
| May-18 | 48.5 | 9,620 | 622 | 10,200 | 686 |
| Jun-18 | 46.0 | 9,290 | 409 | 9,700 | 809 |
| Jul-18 | 44.5 | 10,700 | 499 | 11,200 | 1,180 |
| Aug-18 | 45.2 | 9,510 | 394 | 9,950 | 1,350 |
| Sep-18 | 45.3 | 9,750 | 435 | 9,990 | 1,110 |
| Oct-18 | 44.5 | 9,400 | 467 | 9,860 | 915 |
| Nov-18 | 51.7 | 7,930 | 484 | 8,420 | 500 |
| Dec-18 | 54.2 | 7,430 | 468 | 7,900 | 663 |
| Jan-19 | 68.4 | 8,520 | 1,030 | 10,300 | 731 |
| Feb-19 | 96.6 | 7,890 | 552 | 8,450 | 610 |
| Mar-19 | 82.9 | 8,710 | 614 | 8,610 | 749 |
| Apr-19 | 55.5 | 8,560 | 477 | 9,030 | 959 |
| May-19 | 56.4 | 11,200 | 406 | 11,600 | 780 |
| Jun-19 | 48.3 | 8,810 | 380 | 9,010 | 874 |
| Jul-19 | 45.5 | 8,890 | 440 | 9,330 | 965 |
| Aug-19 | 45.5 | 9,070 | 467 | 9,540 | 830 |
| Sep-19 | 45.9 | 9,340 | 413 | 10,000 | 1,240 |
| Oct-19 | 44.7 | 9,190 | 387 | 9,570 | 1,160 |
| Nov-19 | 45.3 | 9,580 | 357 | 9,810 | 908 |
| Dec-19 | 56.6 | 8,830 | 409 | 9,740 | 982 |
| Jan-20 | 55.2 | 9,350 | 568 | 9,970 | 898 |
| Feb-20 | 48.7 | 9,580 | 373 | 9,950 | 816 |
| Mar-20 | 50.1 | 9,080 | 394 | 9,470 | 852 |
| **Month, Year** | **Flow** | **Ammonia \*** | **Nitrate + Nitrite \*** | **TIN \*,\*\*** | **Total P \*** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Apr-20 | 49.9 | 8,350 | 369 | 8,500 | 563 |
| May-20 | 46.4 | 9,150 | 418 | 9,570 | 783 |
| Jun-20 | 44.5 | 8,370 | 298 | 8,670 | 843 |
| Jul-20 | 46.0 | 8,350 | 317 | 8,660 | 768 |
| Aug-20 | 46.0 | 8,010 | 348 | 8,240 | 775 |
| Sep-20 | 43.8 | 9,190 | 459 | 9,630 | 932 |
| Oct-20 | 43.3 | 8,010 | 657 | 8,660 | 980 |
| Nov-20 | 43.6 | 8,330 | 671 | 9,300 | 952 |
| Dec-20 | 45.2 | 8,230 | 823 | 8,460 | 646 |
| Jan-21 | 49.3 | 7,900 | 501 | 8,400 | 599 |
| Feb-21 | 53.1 | 7,620 | 647 | 8,270 | 482 |
| Mar-21 | 51.3 | 8,560 | 566 | 9,180 | 295 |
| Apr-21 | 45.3 | 9,240 | 396 | 9,250 | 818 |
| May-21 | 43.5 | 8,850 | 353 | 9,210 | 906 |
| Jun-21 | 42.5 | 8,540 | 505 | 9,040 | 1,030 |
| Jul-21 | 41.5 | 6,700 | 676 | 7,370 | 862 |
| Aug-21 | 42.2 | 7,500 | 569 | 8,070 | 928 |
| Sep-21 | 42.5 | 8,140 | 301 | 8,360 | 806 |
| Oct-21 | 58.0 | 8,630 | 431 | 9,470 | 937 |
| Nov-21 | 56.3 | 9,950 | 633 | 11,000 | 745 |
| Dec-21 | 89.1 | 8,860 | 453 | 9,440 | 672 |
| Jan-22 | 57.5 | 7,690 | 1,110 | 8,490 | 439 |
| Feb-22 | 47.8 | 8,990 | 768 | 9,940 | 419 |
| Mar-22 | 46.6 | 9,140 | 541 | 9,810 | 149 |
| Apr-22 | 48.3 | 10,100 | 551 | 10,700 | 507 |
| May-22 | 44.3 | 10,200 | 318 | 10,900 | 696 |
| Jun-22 | 42.9 | 8,710 | 507 | 9,220 | 771 |
| Jul-22 | 41.8 | 9,070 | 483 | 9,560 | 670 |
| Aug-22 | 42.5 | 10,800 | 500 | 11,300 | 766 |
| Sep-22 | 42.7 | 8,150 | 720 | 8,900 | 652 |
| Oct-22 | 42.2 | 10,200 | 430 | 10,600 | 901 |
| Nov-22 | 44.5 | 8,080 | 525 | 8,600 | 774 |
| Dec-22 | 66.2 | 9,030 | 830 | 9,220 | 683 |
| Jan-23 | 117 | 6,300 | 1,860 | 8,800 | 753 |
| Feb-23 | 62.2 | 8,200 | 1,290 | 9,330 | 732 |
| Mar-23 | 102 | 9,630 | 610 | 9,770 | 705 |
| Apr-23 | 57.7 | 9,070 | 530 | 9,590 | 368 |
| **Month, Year** | **Flow** | **Ammonia \*** | **Nitrate + Nitrite \*** | **TIN \*,\*\*** | **Total P \*** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| May-23 | 51.3 | 8,880 | 467 | 9,690 | 826 |
| Jun-23 | 45.4 | 7,210 | 594 | 7,800 | 899 |
| Jul-23 | 43.5 | 5,220 | 1,330 | 6,550 | 1,240 |
| Aug-23 | 44.2 | 5,500 | 914 | 6,410 | 1,140 |
| Sep-23 | 43.8 | 5,480 | 763 | 6,180 | 1,200 |
| Oct-23 | 43.4 | 7,250 | 745 | 7,990 | 1,080 |
| Nov-23 | 44.6 | 8,200 | 320 | 8,530 | 1,060 |
| Dec-23 | 53.1 | 8,240 | 323 | 8,630 | 1,050 |
| Jan-24 | 69.2 | 8,510 | 677 | 8,340 | 1,000 |
| Feb-24 | 87.7 | 9,770 | 858 | 10,600 | 1,260 |
| Mar-24 | 64.5 | 8,590 | 495 | 9,320 | 1,140 |
| Apr-24 | 56.3 | 8,450 | 487 | 9,240 | 1,230 |
| May-24 | 49.0 | 8,400 | 381 | 8,750 | 1,060 |
| Jun-24 | 44.3 | 7,360 | 451 | 7,810 | 1,020 |
| Jul-24 | 43.1 | 7,180 | 861 | 8,040 | 879 |
| Aug-24 | 43.9 | 5,410 | 1,660 | 7,070 | 1,030 |
| Sep-24 | 43.8 | 5,520 | 853 | 6,370 | 924 |
|  |  |  |  |  |  |
| **Dry Season Average** | **45.8** | **8,460** | **573** | **9,040** | **818** |
| **Dry Season**  **Trend \*\*\*** | **Down** | **Down** | **None** | **Down** | **Up** |
| **Wet Season**  **Average** | **60.7** | **8,830** | **756** | **9,580** | **820** |
| **Average Annual** | **54.55** | **8,670** | **680** | **9,350** | **819** |

\* Numbers in this table are slightly different compared to those reported in the CIWQS, due to rounding of conversion factors used.

\*\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 10-2. Discharge: FSSD Monthly Flows and Loads1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 13.5 | 1.26 | 1,570 | 1,570 | 203 |
| Nov-12 | 13.3 | 1.81 | 1,420 | 1,420 | 168 |
| Dec-12 | 21.8 | 2.74 | 1,420 | 1,420 | 206 |
| Jan-13 | 16.7 | 1.90 | 1,220 | 1,220 | 177 |
| Feb-13 | 14.1 | 1.60 | 987 | 989 | 171 |
| Mar-13 | 12.2 | 1.95 | 941 | 943 | 179 |
| Apr-13 | 15.4 | 1.46 | 1,310 | 1,320 | 221 |
| May-13 | 11.3 | 0.855 | 1,350 | 1,350 | 198 |
| Jun-13 | 9.15 | 0.691 | 1,190 | 1,190 | 168 |
| Jul-13 | 10.4 | 0.787 | 1,300 | 1,300 | 190 |
| Aug-13 | 10.1 | 0.940 | 1,240 | 1,250 | 206 |
| Sep-13 | 10.6 | 1.42 | 1,700 | 1,700 | 243 |
| Oct-13 | 11.1 | 1.25 | 1,740 | 1,750 | 187 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-13 | 11.7 | 1.50 | 1,660 | 1,660 | 192 |
| Dec-13 | 12.7 | 0.962 | 1,680 | 1,690 | 221 |
| Jan-14 | 10.3 | 0.775 | 1,380 | 1,380 | 197 |
| Feb-14 | 16.1 | 3.57 | 1,550 | 1,560 | 193 |
| Mar-14 | 17.8 | 2.89 | 1,440 | 1,440 | 189 |
| Apr-14 | 18.1 | 2.82 | 1,660 | 1,670 | 232 |
| May-14 | 11.6 | 1.75 | 1,140 | 1,140 | 191 |
| Jun-14 | 10.5 | 0.982 | 1,100 | 1,100 | 189 |
| Jul-14 | 9.88 | 1.12 | 868 | 869 | 190 |
| Aug-14 | 9.67 | 1.18 | 977 | 978 | 163 |
| Sep-14 | 9.50 | 1.32 | 759 | 761 | 135 |
| Oct-14 | 11.0 | 1.83 | 1,040 | 1,040 | 195 |
| Nov-14 | 12.2 | 2.00 | 1,240 | 1,240 | 209 |
| Dec-14 | 22.4 | 3.12 | 1,470 | 1,480 | 225 |
| Jan-15 | 14.5 | 2.18 | 1,300 | 1,300 | 235 |
| Feb-15 | 15.1 | 1.78 | 1,210 | 1,210 | 227 |
| Mar-15 | 12.6 | 1.45 | 1,130 | 1,130 | 238 |
| Apr-15 | 11.5 | 1.34 | 901 | 902 | 190 |
| May-15 | 9.95 | 1.18 | 860 | 861 | 169 |
| Jun-15 | 9.35 | 1.07 | 842 | 843 | 187 |
| Jul-15 | 8.75 | 0.924 | 608 | 609 | 154 |
| Aug-15 | 8.70 | 1.03 | 883 | 884 | 183 |
| Sep-15 | 8.85 | 0.896 | 836 | 837 | 166 |
| Oct-15 | 10.6 | 1.17 | 840 | 842 | 209 |
| Nov-15 | 11.9 | 4.73 | 1,020 | 1,030 | 198 |
| Dec-15 | 13.2 | 1.36 | 756 | 757 | 213 |
| Jan-16 | 19.3 | 2.38 | 1,290 | 1,300 | 217 |
| Feb-16 | 14.8 | 2.69 | 1,260 | 1,260 | 194 |
| Mar-16 | 21.0 | 2.77 | 1,180 | 1,180 | 258 |
| Apr-16 | 14.1 | 1.58 | 871 | 873 | 238 |
| May-16 | 12.1 | 1.99 | 942 | 944 | 225 |
| Jun-16 | 9.86 | 1.01 | 634 | 635 | 164 |
| Jul-16 | 9.65 | 1.04 | 657 | 658 | 173 |
| Aug-16 | 9.88 | 0.910 | 552 | 553 | 161 |
| Sep-16 | 9.60 | 1.33 | 482 | 483 | 150 |
| Oct-16 | 11.7 | 1.76 | 565 | 566 | 152 |
| Nov-16 | 13.3 | 2.52 | 604 | 607 | 147 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-16 | 16.4 | 2.15 | 885 | 887 | 174 |
| Jan-17 | 29.8 | 4.77 | 1,050 | 1,060 | 210 |
| Feb-17 | 31.1 | 5.60 | 815 | 821 | 179 |
| Mar-17 | 20.9 | 3.24 | 653 | 656 | 190 |
| Apr-17 | 19.4 | 2.83 | 984 | 987 | 252 |
| May-17 | 14.0 | 1.96 | 1,320 | 1,320 | 227 |
| Jun-17 | 12.4 | 2.10 | 1,340 | 1,340 | 221 |
| Jul-17 | 11.5 | 1.58 | 979 | 980 | 192 |
| Aug-17 | 11.4 | 1.73 | 868 | 870 | 195 |
| Sep-17 | 11.7 | 1.84 | 900 | 902 | 223 |
| Oct-17 | 11.8 | 1.94 | 916 | 918 | 208 |
| Nov-17 | 13.3 | 7.91 | 1,280 | 1,290 | 221 |
| Dec-17 | 12.7 | 7.81 | 1,270 | 1,280 | 232 |
| Jan-18 | 15.4 | 9.74 | 1,560 | 1,570 | 260 |
| Feb-18 | 13.6 | 8.61 | 1,430 | 1,440 | 241 |
| Mar-18 | 17.6 | 12.0 | 1,390 | 1,410 | 249 |
| Apr-18 | 17.6 | 9.75 | 1,520 | 1,530 | 249 |
| May-18 | 12.8 | 7.29 | 1,370 | 1,370 | 212 |
| Jun-18 | 11.6 | 5.97 | 1,070 | 1,070 | 235 |
| Jul-18 | 11.2 | 6.74 | 1,040 | 1,230 | 186 |
| Aug-18 | 11.4 | 7.57 | 1,490 | 1,500 | 293 |
| Sep-18 | 11.4 | 6.56 | 1,190 | 1,190 | 240 |
| Oct-18 | 11.2 | 6.63 | 1,140 | 1,150 | 238 |
| Nov-18 | 13.0 | 9.32 | 1,210 | 1,220 | 272 |
| Dec-18 | 15.2 | 8.32 | 1,440 | 1,450 | 269 |
| Jan-19 | 19.4 | 19.9 | 1,640 | 1,660 | 286 |
| Feb-19 | 24.5 | 10.6 | 1,280 | 1,290 | 256 |
| Mar-19 | 21.3 | 7.67 | 1,020 | 1,030 | 179 |
| Apr-19 | 16.7 | 9.60 | 663 | 672 | 191 |
| May-19 | 15.9 | 11.4 | 991 | 1,000 | 248 |
| Jun-19 | 13.3 | 6.98 | 998 | 1,010 | 242 |
| Jul-19 | 12.1 | 6.36 | 1,000 | 1,010 | 209 |
| Aug-19 | 11.6 | 5.73 | 1,010 | 1,020 | 222 |
| Sep-19 | 11.3 | 6.57 | 1,060 | 1,060 | 214 |
| Oct-19 | 11.8 | 12.0 | 1,040 | 1,050 | 217 |
| Nov-19 | 12.5 | 6.04 | 989 | 995 | 195 |
| Dec-19 | 17.2 | 9.73 | 1,170 | 1,180 | 172 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Jan-20 | 15.5 | 5.95 | 1,110 | 1,110 | 242 |
| Feb-20 | 13.8 | 3.98 | 1,090 | 1,090 | 220 |
| Mar-20 | 14.1 | 4.18 | 1,060 | 1,060 | 200 |
| Apr-20 | 13.8 | 4.22 | 1,080 | 1,090 | 192 |
| May-20 | 12.0 | 3.52 | 1,070 | 1,080 | 222 |
| Jun-20 | 11.1 | 2.96 | 956 | 959 | 169 |
| Jul-20 | 11.1 | 3.01 | 920 | 923 | 158 |
| Aug-20 | 11.1 | 3.15 | 1,020 | 1,020 | 228 |
| Sep-20 | 11.2 | 3.24 | 859 | 862 | 201 |
| Oct-20 | 11.8 | 3.51 | 968 | 971 | 172 |
| Nov-20 | 12.8 | 3.55 | 1,200 | 1,200 | 171 |
| Dec-20 | 13.3 | 4.66 | 1,140 | 1,140 | 178 |
| Jan-21 | 14.4 | 4.40 | 1,240 | 1,240 | 218 |
| Feb-21 | 15.4 | 4.93 | 1,030 | 1,030 | 229 |
| Mar-21 | 14.0 | 4.50 | 1,020 | 1,020 | 221 |
| Apr-21 | 11.9 | 3.34 | 1,000 | 1,000 | 148 |
| May-21 | 11.8 | 5.16 | 1,120 | 1,130 | 213 |
| Jun-21 | 11.0 | 3.27 | 976 | 980 | 178 |
| Jul-21 | 10.6 | 2.97 | 809 | 812 | 154 |
| Aug-21 | 10.4 | 2.74 | 741 | 744 | 169 |
| Sep-21 | 10.3 | 3.19 | 857 | 860 | 180 |
| Oct-21 | 14.3 | 9.49 | 1,150 | 1,160 | 272 |
| Nov-21 | 16.9 | 23.4 | 1,440 | 1,460 | 189 |
| Dec-21 | 20.6 | 5.23 | 1,130 | 1,130 | 170 |
| Jan-22 | 15.7 | 23.0 | 1,110 | 1,130 | 206 |
| Feb-22 | 14.5 | 14.6 | 1,180 | 1,190 | 205 |
| Mar-22 | 13.2 | 24.0 | 1,060 | 1,090 | 190 |
| Apr-22 | 13.9 | 20.1 | 1,060 | 1,080 | 165 |
| May-22 | 12.7 | 12.3 | 1,100 | 1,110 | 191 |
| Jun-22 | 10.9 | 11.3 | 1,020 | 1,030 | 195 |
| Jul-22 | 10.8 | 14.7 | 1,050 | 1,060 | 148 |
| Aug-22 | 11.8 | 11.7 | 1,100 | 1,120 | 196 |
| Sep-22 | 11.0 | 10.4 | 894 | 904 | 177 |
| Oct-22 | 12.3 | 13.4 | 1,030 | 1,050 | 188 |
| Nov-22 | 12.8 | 12.0 | 1,050 | 1,060 | 160 |
| Dec-22 | 16.6 | 25.3 | 1,050 | 1,070 | 169 |
| Jan-23 | 31.1 | 31.2 | 1,160 | 1,190 | 171 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Feb-23 | 18.4 | 17.8 | 1,200 | 1,220 | 208 |
| Mar-23 | 29.6 | 29.3 | 1,450 | 1,480 | 302 |
| Apr-23 | 19.7 | 21.8 | 1,240 | 1,260 | 308 |
| May-23 | 15.0 | 13.5 | 1,050 | 1,060 | 192 |
| Jun-23 | 13.7 | 13.6 | 384 | 398 | 48.0 |
| Jul-22 | 13.6 | 14.7 | 949 | 963 | 276 |
| Aug-23 | 13.2 | 11.8 | 951 | 962 | 137 |
| Sep-23 | 12.4 | 11.7 | 1,020 | 1,040 | 189 |
| Oct-23 | 13.0 | 6.82 | 1,370 | 1,370 | 195 |
| Nov-23 | 12.9 | 6.25 | 1,070 | 1,080 | 156 |
| Dec-23 | 15.1 | 8.01 | 1,030 | 1,040 | 154 |
| Jan-24 | 21.1 | 12.3 | 1,230 | 1,240 | 142 |
| Feb-24 | 25.8 | 29.8 | 1,350 | 1,380 | 212 |
| Mar-24 | 19.9 | 7.08 | 1,040 | 1,050 | 157 |
| Apr-24 | 16.5 | 14.0 | 934 | 948 | 161 |
| May-24 | 14.3 | 7.55 | 742 | 749 | 144 |
| Jun-24 | 12.9 | 4.58 | 1,090 | 1,090 | 168 |
| Jul-24 | 12.5 | 19.0 | 933 | 952 | 167 |
| Aug-24 | 12.4 | 4.01 | 982 | 986 | 203 |
| Sep-24 | 11.8 | 3.95 | 958 | 962 | 157 |
|  |  |  |  |  |  |
| **Dry Season Average** | **11.4** | **5.02** | **985** | **993** | **190** |
| **Dry Season**  **Trend \*\*** | **Up** | **--\*\*\*** | **None** | **None** | **None** |
| **Wet Season**  **Average** | **16.0** | **7.61** | **1,170** | **1,180** | **206** |
| **Average Annual** | **14.1** | **6.53** | **1,090** | **1,100** | **199** |

1 For non-detects after October 1, 2023, 1/2 of the method detection limit was used to quantify values. Prior to October 1, 2023, non-detect values used the provided method detection limit.

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

\*\*\* Ammonia was not considered in the trending as the plant reliably fully nitrifies and the majority of samples are non-detects.

**Table 11-1. Discharge: Las Gallinas Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 0 | 0 | 0 | 0 | 0 |
| Nov-12 | 2.40 | 23.6 | 183 | 206 | 36.3 |
| Dec-12 | 2.90 | 43.8 | 188 | 232 | 35.1 |
| Jan-13 | 3.40 | 18.0 | 207 | 225 | 33.4 |
| Feb-13 | 2.80 | 9.21 | 307 | 316 | 43.4 |
| Mar-13 | 2.50 | 22.7 | 265 | 288 | 43.5 |
| Apr-13 | 2.45 | 11.1 | 270 | 281 | 44.5 |
| May-13 | 0 | 0 | 0 | 0 | 0 |
| Jun-13 | 0 | 0 | 0 | 0 | 0 |
| Jul-13 | 0 | 0 | 0 | 0 | 0 |
| Aug-13 | 0 | 0 | 0 | 0 | 0 |
| Sep-13 | 0 | 0 | 0 | 0 | 0 |
| Oct-13 | 0 | 0 | 0 | 0 | 0 |
| Nov-13 | 2.29 | 21.6 | 217 | 239 | 38.1 |
| Dec-13 | 2.16 | 44.9 | 230 | 275 | 41.6 |
| Jan-14 | 2.24 | 38.9 | 289 | 328 | 44.9 |
| Feb-14 | 3.41 | 42.5 | 144 | 186 | 19.3 |
| Mar-14 | 1.31 | 16.8 | 115 | 132 | 20.3 |
| Apr-14 | 2.85 | 12.9 | 249 | 262 | 42.0 |
| May-14 | 0 | 0 | 0 | 0 | 0 |
| Jun-14 | 0 | 0 | 0 | 0 | 0 |
| Jul-14 | 0 | 0 | 0 | 0 | 0 |
| Aug-14 | 0 | 0 | 0 | 0 | 0 |
| Sep-14 | 0 | 0 | 0 | 0 | 0 |
| Oct-14 | 0 | 0 | 0 | 0 | 0 |
| Nov-14 | 2.10 | 26.2 | 149 | 175 | 26.2 |
| Dec-14 | 5.40 | 25.4 | 309 | 335 | 41.4 |
| Jan-15 | 2.30 | 68.1 | 203 | 271 | 39.4 |
| Feb-15 | 3.00 | 17.9 | 218 | 236 | 30.7 |
| Mar-15 | 2.20 | 1.60 | 152 | 153 | 37.5 |
| Apr-15 | 0 | 0 | 0 | 0 | 0 |
| May-15 | 0 | 0 | 0 | 0 | 0 |
| Jun-15 | 0 | 0 | 0 | 0 | 0 |
| Jul-15 | 0 | 0 | 0 | 0 | 0 |
| Aug-15 | 0 | 0 | 0 | 0 | 0 |
| Sep-15 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 0 | 0 | 0 | 0 | 0 |
| Nov-15 | 2.48 | 34.8 | 188 | 223 | 42.9 |
| Dec-15 | 2.87 | 73.3 | 147 | 220 | 40.7 |
| Jan-16 | 4.42 | 87.4 | 218 | 305 | 45.1 |
| Feb-16 | 2.66 | 49.8 | 184 | 234 | 50.2 |
| Mar-16 | 4.65 | 27.2 | 230 | 257 | 51.2 |
| Apr-16 | 2.89 | 8.42 | 206 | 214 | 40.9 |
| May-16 | 0 | 0 | 0 | 0 | 0 |
| Jun-16 | 0 | 0 | 0 | 0 | 0 |
| Jul-16 | 0 | 0 | 0 | 0 | 0 |
| Aug-16 | 0 | 0 | 0 | 0 | 0 |
| Sep-16 | 0 | 0 | 0 | 0 | 0 |
| Oct-16 | 0 | 0 | 0 | 0 | 0 |
| Nov-16 | 3.69 | 43.6 | 202 | 246 | 48.0 |
| Dec-16 | 4.54 | 81.0 | 168 | 249 | 46.0 |
| Jan-17 | 7.77 | 121 | 178 | 299 | 39.0 |
| Feb-17 | 7.45 | 64.9 | 212 | 277 | 38.0 |
| Mar-17 | 4.48 | 50.8 | 206 | 257 | 41.0 |
| Apr-17 | 4.36 | 43.3 | 246 | 289 | 42.0 |
| May-17 | 2.04 | 11.6 | 33.3 | 44.9 | 4.22 |
| Jun-17 | 0 | 0 | 0 | 0 | 0 |
| Jul-17 | 0 | 0 | 0 | 0 | 0 |
| Aug-17 | 0 | 0 | 0 | 0 | 0 |
| Sep-17 | 0 | 0 | 0 | 0 | 0 |
| Oct-17 | 0 | 0 | 0 | 0 | 0 |
| Nov-17 | 2.41 | 63.2 | 231 | 294 | 39.6 |
| Dec-17 | 2.02 | 61.2 | 225 | 286 | 36.0 |
| Jan-18 | 2.89 | 77.1 | 159 | 236 | 21.2 |
| Feb-18 | 2.12 | 61.7 | 184 | 246 | 37.8 |
| Mar-18 | 3.96 | 116 | 196 | 312 | 28.0 |
| Apr-18 | 2.81 | 36.5 | 215 | 251 | 35.0 |
| May-18 | 0 | 0 | 0 | 0 | 0 |
| Jun-18 | 0 | 0 | 0 | 0 | 0 |
| Jul-18 | 0 | 0 | 0 | 0 | 0 |
| Aug-18 | 0 | 0 | 0 | 0 | 0 |
| Sep-18 | 0 | 0 | 0 | 0 | 0 |
| Oct-18 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 2.93 | 79.5 | 254 | 310 | 49.9 |
| Dec-18 | 3.19 | 83.7 | 183 | 284 | 34.7 |
| Jan-19 | 4.89 | 105 | 184 | 230 | 31.6 |
| Feb-19 | 7.27 | 170 | 154 | 247 | 31.1 |
| Mar-19 | 5.38 | 100 | 182 | 248 | 33.1 |
| Apr-19 | 4.05 | 54.8 | 193 | 258 | 51.3 |
| May-19 | 3.75 | 55.9 | 215 | 257 | 54.0 |
| Jun-19 | 0 | 0 | 0 | 0 | 0 |
| Jul-19 | 0 | 0 | 0 | 0 | 0 |
| Aug-19 | 0 | 0 | 0 | 0 | 0 |
| Sep-19 | 0 | 0 | 0 | 0 | 0 |
| Oct-19 | 2.70 | 14.6 | 205 | 213 | 38.6 |
| Nov-19 | 1.31 | 23.0 | 153 | 170 | 29.7 |
| Dec-19 | 4.79 | 131 | 188 | 257 | 34.2 |
| Jan-20 | 3.76 | 97.9 | 165 | 254 | 41.2 |
| Feb-20 | 2.92 | 58.1 | 207 | 257 | 49.2 |
| Mar-20 | 3.16 | 25.1 | 199 | 226 | 42.1 |
| Apr-20 | 2.49 | 28.4 | 283 | 312 | 54.8 |
| May-20 | 2.03 | 3.61 | 231 | 236 | 43.4 |
| Jun-20 | 0 | 0 | 0 | 0 | 0 |
| Jul-20 | 0 | 0 | 0 | 0 | 0 |
| Aug-20 | 0 | 0 | 0 | 0 | 0 |
| Sep-20 | 0 | 0 | 0 | 0 | 0 |
| Oct-20 | 2.29 | 19.6 | 200 | 206 | 35.1 |
| Nov-20 | 2.42 | 66.7 | 127 | 139 | 23.2 |
| Dec-20 | 2.19 | 78.3 | 218 | 296 | 42.9 |
| Jan-21 | 2.62 | 157 | 172 | 253 | 43.4 |
| Feb-21 | 2.92 | 87.0 | 177 | 264 | 19.6 |
| Mar-21 | 2.50 | 110 | 143 | 252 | 36.2 |
| Apr-21 | 2.35 | 8.85 | 121 | 130 | 35.4 |
| May-21 | 0 | 0 | 0 | 0 | 0 |
| Jun-21 | 0 | 0 | 0 | 0 | 0 |
| Jul-21 | 0 | 0 | 0 | 0 | 0 |
| Aug-21 | 0 | 0 | 0 | 0 | 0 |
| Sep-21 | 0 | 0 | 0 | 0 | 0 |
| Oct-21 | 0.565 | 6.88 | 25.3 | 31.3 | 10.2 |
| Nov-21 | 2.01 | 12.1 | 50.6 | 62.7 | 20.4 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 4.75 | 112 | 120 | 126 | 35.1 |
| Jan-22 | 3.23 | 17.6 | 139 | 157 | 33.9 |
| Feb-22 | 2.36 | 14.6 | 56.7 | 71.3 | 26.5 |
| Mar-22 | 1.69 | 3.23 | 91.1 | 94.3 | 34.8 |
| Apr-22 | 1.96 | 42.6 | 31.1 | 73.7 | 28.0 |
| May-22 | 0 | 0 | 0 | 0 | 0 |
| Jun-22 | 0 | 0 | 0 | 0 | 0 |
| Jul-22 | 0 | 0 | 0 | 0 | 0 |
| Aug-22 | 0 | 0 | 0 | 0 | 0 |
| Sep-22 | 0 | 0 | 0 | 0 | 0 |
| Oct-22 | 0 | 0 | 0 | 0 | 0 |
| Nov-22 | 0 | 0 | 0 | 0 | 0 |
| Dec-22 | 4.49 | 4.69 | 142 | 145 | 47.8 |
| Jan-23 | 7.41 | 17.4 | 145 | 172 | 6.80 |
| Feb-23 | 5.59 | 12.2 | 117 | 129 | 35.1 |
| Mar-23 | 6.30 | 193 | 119 | 120 | 9.69 |
| Apr-23 | 1.89 | 11.3 | 191 | 202 | 64.4 |
| May-23 | 0 | 0 | 0 | 0 | 0 |
| Jun-23 | 0 | 0 | 0 | 0 | 0 |
| Jul-23 | 0 | 0 | 0 | 0 | 0 |
| Aug-23 | 0 | 0 | 0 | 0 | 0 |
| Sep-23 | 0 | 0 | 0 | 0 | 0 |
| Oct-23 | 0 | 0 | 0 | 0 | 0 |
| Nov-23 | 1.50 | 0.806 | 19.7 | 20.5 | 13.9 |
| Dec-23 | 3.93 | 4.86 | 107 | 112 | 45.0 |
| Jan-24 | 4.00 | 4.50 | 164 | 169 | 45.0 |
| Feb-24 | 5.02 | 5.00 | 135 | 140 | 18.8 |
| Mar-24 | 4.64 | 4.41 | 170 | 174 | 28.8 |
| Apr-24 | 2.31 | 37.1 | 86.1 | 123 | 29.4 |
| May-24 | 0 | 0 | 0 | 0 | 0 |
| Jun-24 | 0 | 0 | 0 | 0 | 0 |
| Jul-24 | 0 | 0 | 0 | 0 | 0 |
| Aug-24 | 0 | 0 | 0 | 0 | 0 |
| Sep-24 | 0 | 0 | 0 | 0 | 0 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **0.130** | **1.18** | **7.98** | **8.96** | **1.69** |
| **Dry Season**  **Trend \*\*** | **--\*\*\*** | **--\*\*\*** | **--\*\*\*** | **--\*\*\*** | **--\*\*\*** |
| **Wet Season**  **Average** | **2.90** | **42.3** | **154** | **188** | **31.3** |
| **Average Annual** | **1.75** | **25.1** | **92.9** | **113** | **19.0** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* The dry season average is significantly lower than the wet season due to only having one month with a dry season discharge (May 2017).

\*\*\* No dry season trending analysis was performed on Las Gallinas as discharge is prohibited from June through October.

#### 

**Table 12-1. Discharge: Millbrae Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 1.48 | 185 | 1.40 | 186 | 14.5 |
| Nov-12 | 1.63 | 253 | 1.11 | 254 | 17.3 |
| Dec-12 | 1.95 | 273 | 0.855 | 274 | 16.2 |
| Jan-13 | 1.70 | 283 | 0.945 | 284 | 16.7 |
| Feb-13 | 1.42 | 236 | 0.896 | 237 | 16.1 |
| Mar-13 | 1.54 | 253 | 5.46 | 259 | 15.6 |
| Apr-13 | 1.61 | 152 | 8.23 | 160 | 6.09 |
| May-13 | 1.58 | 257 | 3.72 | 261 | 14.9 |
| Jun-13 | 1.28 | 194 | 1.55 | 195 | 14.5 |
| Jul-13 | 1.64 | 291 | 5.95 | 297 | 27.9 |
| Aug-13 | 1.53 | 249 | 1.15 | 250 | 16.8 |
| Sep-13 | 1.60 | 224 | 9.19 | 233 | 21.8 |
| Oct-13 | 1.43 | 232 | 2.43 | 235 | 17.3 |
| Nov-13 | 1.52 | 230 | 0.718 | 231 | 17.8 |
| Dec-13 | 1.41 | 192 | 0.933 | 193 | 11.7 |
| Jan-14 | 1.53 | 295 | 0.197 | 295 | 15.0 |
| Feb-14 | 3.01 | 260 | 2.96 | 263 | 13.9 |
| Mar-14 | 1.72 | 241 | 0.592 | 241 | 6.37 |
| Apr-14 | 2.98 | 315 | 1.72 | 317 | 14.6 |
| May-14 | 1.30 | 241 | 0.457 | 241 | 13.8 |
| Jun-14 | 1.24 | 225 | 0.502 | 225 | 15.5 |
| Jul-14 | 1.22 | 190 | 0.0650 | 190 | 13.0 |
| Aug-14 | 1.22 | 160 | 3.00 | 163 | 11.0 |
| Sep-14 | 1.25 | 213 | 2.00 | 215 | 12.0 |
| Oct-14 | 1.23 | 211 | 1.00 | 212 | 13.0 |
| Nov-14 | 1.20 | 124 | 0.670 | 125 | 6.05 |
| Dec-14 | 2.32 | 235 | 13.0 | 248 | 18.3 |
| Jan-15 | 1.33 | 289 | 0.750 | 289 | 16.0 |
| Feb-15 | 1.54 | 262 | 0.690 | 263 | 8.55 |
| Mar-15 | 1.37 | 279 | 0.780 | 279 | 10.6 |
| Apr-15 | 1.32 | 276 | 0.900 | 276 | 12.8 |
| May-15 | 1.23 | 231 | 1.33 | 232 | 12.0 |
| Jun-15 | 1.21 | 230 | 1.76 | 232 | 13.1 |
| Jul-15 | 1.18 | 231 | 0.0856 | 231 | 13.3 |
| Aug-15 | 1.18 | 250 | 0.715 | 251 | 16.1 |
| Sep-15 | 1.14 | 231 | 4.00 | 235 | 16.5 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 1.17 | 250 | 1.91 | 252 | 20.8 |
| Nov-15 | 1.22 | 274 | 3.46 | 277 | 17.8 |
| Dec-15 | 1.51 | 197 | 0.644 | 197 | 11.4 |
| Jan-16 | 1.96 | 245 | 12.4 | 257 | 8.24 |
| Feb-16 | 1.42 | 203 | 2.63 | 206 | 8.78 |
| Mar-16 | 2.14 | 259 | 0.600 | 259 | 12.9 |
| Apr-16 | 1.49 | 290 | 0.738 | 290 | 4.77 |
| May-16 | 1.43 | 331 | 0.672 | 331 | 14.0 |
| Jun-16 | 1.41 | 317 | 0.753 | 318 | 14.0 |
| Jul-16 | 1.37 | 269 | 0.492 | 269 | 11.7 |
| Aug-16 | 1.40 | 284 | 0.510 | 284 | 9.85 |
| Sep-16 | 1.40 | 261 | 0.935 | 262 | 9.35 |
| Oct-16 | 1.63 | 259 | 1.40 | 261 | 9.33 |
| Nov-16 | 1.55 | 275 | 1.46 | 276 | 8.40 |
| Dec-16 | 2.05 | 186 | 3.55 | 190 | 10.2 |
| Jan-17 | 3.07 | 333 | 9.52 | 343 | 12.7 |
| Feb-17 | 3.13 | 309 | 5.66 | 314 | 9.26 |
| Mar-17 | 2.07 | 332 | 0.440 | 332 | 10.8 |
| Apr-17 | 1.84 | 358 | 0.874 | 359 | 7.00 |
| May-17 | 1.45 | 285 | 0.778 | 286 | 14.5 |
| Jun-17 | 1.39 | 288 | 1.55 | 290 | 18.7 |
| Jul-17 | 1.37 | 270 | 0.954 | 271 | 11.7 |
| Aug-17 | 1.42 | 314 | 0.595 | 315 | 16.8 |
| Sep-17 | 1.46 | 291 | 0.560 | 292 | 14.0 |
| Oct-17 | 1.43 | 270 | 0.472 | 271 | 7.95 |
| Nov-17 | 1.63 | 269 | 0.349 | 269 | 14.0 |
| Dec-17 | 1.43 | 296 | 0.296 | 296 | 7.53 |
| Jan-18 | 1.86 | 253 | 0.699 | 253 | 3.82 |
| Feb-18 | 1.45 | 283 | 1.07 | 284 | 2.72 |
| Mar-18 | 1.93 | 249 | 0.811 | 250 | 7.53 |
| Apr-18 | 1.57 | 256 | 0.888 | 257 | 6.27 |
| May-18 | 1.34 | 265 | 0.899 | 266 | 2.74 |
| Jun-18 | 1.28 | 243 | 1.38 | 245 | 3.96 |
| Jul-18 | 1.28 | 210 | 0.581 | 210 | 7.59 |
| Aug-18 | 1.29 | 270 | 0.435 | 271 | 11.7 |
| Sep-18 | 1.32 | 259 | 1.32 | 260 | 13.2 |
| Oct-18 | 1.28 | 285 | 1.99 | 287 | 15.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 1.49 | 258 | 0.751 | 259 | 17.4 |
| Dec-18 | 1.48 | 292 | 1.31 | 294 | 16.1 |
| Jan-19 | 2.11 | 297 | 0.989 | 298 | 17.5 |
| Feb-19 | 2.94 | 281 | 0.611 | 281 | 11.6 |
| Mar-19 | 2.42 | 183 | 7.48 | 190 | 9.64 |
| Apr-19 | 1.60 | 287 | 0.500 | 288 | 15.0 |
| May-19 | 1.64 | 316 | 1.44 | 318 | 24.7 |
| Jun-19 | 1.46 | 303 | 1.49 | 304 | 22.9 |
| Jul-19 | 1.42 | 346 | 0.417 | 347 | 22.2 |
| Aug-19 | 1.43 | 281 | 1.06 | 282 | 19.1 |
| Sep-19 | 1.44 | 276 | 7.18 | 283 | 23.2 |
| Oct-19 | 1.43 | 235 | 2.25 | 237 | 19.8 |
| Nov-19 | 1.48 | 265 | 20.3 | 285 | 27.1 |
| Dec-19 | 1.77 | 333 | 1.77 | 334 | 23.4 |
| Jan-20 | 1.66 | 265 | 0.57 | 265 | 20.1 |
| Feb-20 | 1.53 | 316 | 1.02 | 317 | 18.0 |
| Mar-20 | 1.52 | 344 | 2.91 | 347 | 7.58 |
| Apr-20 | 1.54 | 290 | 5.40 | 295 | 21.7 |
| May-20 | 1.37 | 242 | 16.1 | 258 | 25.2 |
| Jun-20 | 1.38 | 206 | 25.7 | 232 | 23.7 |
| Jul-20 | 1.36 | 305 | 1.32 | 306 | 12.6 |
| Apr-20 | 1.37 | 266 | 2.61 | 269 | 18.8 |
| Sep-20 | 1.36 | 311 | 2.23 | 313 | 19.7 |
| Oct-20 | 1.32 | 239 | 0.400 | 240 | 11.7 |
| Nov-20 | 1.34 | 335 | 0.640 | 335 | 16.7 |
| Dec-20 | 1.40 | 249 | 20.0 | 269 | 18.6 |
| Jan-21 | 1.51 | 269 | 0.721 | 270 | 9.61 |
| Feb-21 | 1.55 | 217 | 2.22 | 219 | 7.58 |
| Mar-21 | 1.52 | 317 | 25.5 | 342 | 19.2 |
| Apr-21 | 1.38 | 226 | 61.8 | 288 | 20.6 |
| May-21 | 1.36 | 373 | 1.61 | 375 | 20.7 |
| Jun-21 | 1.34 | 242 | 1.36 | 243 | 12.1 |
| Jul-21 | 1.31 | 258 | 1.29 | 259 | 13.9 |
| Aug-21 | 1.29 | 250 | 1.97 | 252 | 20.7 |
| Sep-21 | 1.29 | 248 | 1.96 | 250 | 15.7 |
| Oct-21 | 1.75 | 255 | 2.18 | 258 | 20.8 |
| Nov-21 | 1.46 | 174 | 30.7 | 204 | 19.7 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 2.67 | 188 | 39.8 | 228 | 28.5 |
| Jan-22 | 1.68 | 146 | 63.5 | 210 | 13.0 |
| Feb-22 | 1.41 | 274 | 2.74 | 276 | 8.94 |
| Mar-22 | 1.40 | 236 | 1.38 | 238 | 9.35 |
| Apr-22 | 1.48 | 296 | 0.622 | 296 | 15.6 |
| May-22 | 1.40 | 258 | 2.47 | 260 | 12.1 |
| Jun-22 | 1.36 | 238 | 2.03 | 240 | 12.7 |
| Jul-22 | 1.32 | 212 | 4.53 | 217 | 5.08 |
| Aug-22 | 1.31 | 248 | 1.81 | 250 | 11.4 |
| Sep-22 | 1.30 | 255 | 1.80 | 257 | 9.49 |
| Oct-22 | 1.32 | 302 | 2.49 | 305 | 27.0 |
| Nov-22 | 1.39 | 244 | 5.09 | 249 | 24.4 |
| Dec-22 | 1.93 | 249 | 15.5 | 264 | 17.7 |
| Jan-23 | 2.96 | 273 | 21.2 | 294 | 13.3 |
| Feb-23 | 1.92 | 238 | 23.2 | 261 | 8.36 |
| Mar-23 | 2.85 | 251 | 18.6 | 270 | 8.91 |
| Apr-23 | 1.62 | 219 | 36.0 | 255 | 7.08 |
| May-23 | 1.54 | 279 | 20.0 | 299 | 15.0 |
| Jun-23 | 1.45 | 161 | 20.7 | 181 | 10.9 |
| Jul-23 | 1.44 | 239 | 1.09 | 240 | 11.9 |
| Aug-23 | 1.39 | 284 | 0.380 | 284 | 14.2 |
| Sep-23 | 1.36 | 264 | 0.684 | 264 | 14.6 |
| Oct-23 | 1.34 | 296 | 0.337 | 297 | 22.0 |
| Nov-23 | 1.41 | 247 | 0.446 | 248 | 16.0 |
| Dec-23 | 1.69 | 328 | 1.09 | 329 | 18.4 |
| Jan-24 | 2.03 | 379 | 2.20 | 381 | 21.2 |
| Feb-24 | 2.45 | 315 | 1.52 | 317 | 21.7 |
| Mar-24 | 2.09 | 331 | 1.85 | 333 | 15.6 |
| Apr-24 | 1.64 | 272 | 1.30 | 273 | 13.0 |
| May-24 | 1.57 | 282 | 2.88 | 285 | 14.1 |
| Jun-24 | 1.45 | 280 | 1.81 | 282 | 25.2 |
| Jul-24 | 1.39 | 248 | 4.36 | 252 | 19.8 |
| Aug-24 | 1.43 | 257 | 0.772 | 258 | 24.7 |
| Sep-24 | 1.45 | 259 | 2.18 | 261 | 14.5 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **1.37** | **259** | **3.05** | **262** | **15.3** |
| **Dry Season**  **Trend\*\*** | **None** | **None** | **None** | **None** | **None** |
| **Wet Season**  **Average** | **1.73** | **262** | **6.27** | **268** | **14.1** |
| **Average Annual** | **1.58** | **261** | **4.93** | **266** | **14.6** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 13-1. Discharge: Mt. View Sanitary District Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 1.23 | 0.461 | 93.2 | 93.7 | 18.2 |
| Nov-12 | 1.25 | 0.189 | 109 | 109 | 21.2 |
| Dec-12 | 3.01 | 24.3 | 174 | 198 | 19.5 |
| Jan-13 | 1.37 | 0.982 | 140 | 141 | 16.0 |
| Feb-13 | 1.19 | 2.30 | 135 | 138 | 17.6 |
| Mar-13 | 1.22 | 0.879 | 130 | 130 | 19.0 |
| Apr-13 | 1.12 | 1.34 | 133 | 135 | 17.8 |
| May-13 | 1.16 | 1.40 | 105 | 107 | 11.4 |
| Jun-13 | 1.12 | 2.32 | 80.2 | 82.6 | 17.7 |
| Jul-13 | 1.08 | 1.30 | 89.6 | 90.9 | 18.7 |
| Aug-13 | 1.11 | 1.00 | 121 | 122 | 23.8 |
| Sep-13 | 1.22 | 0.509 | 102 | 102 | 17.6 |
| Oct-13 | 1.20 | 0.680 | 141 | 141 | 18.6 |
| Nov-13 | 1.35 | 0.771 | 125 | 126 | 22.2 |
| Dec-13 | 1.30 | 1.77 | 148 | 150 | 20.6 |
| Jan-14 | 1.07 | 1.03 | 133 | 134 | 16.7 |
| Feb-14 | 1.51 | 0.913 | 177 | 178 | 18.8 |
| Mar-14 | 1.34 | 0.334 | 122 | 122 | 11.1 |
| Apr-14 | 1.47 | 0.611 | 133 | 134 | 8.33 |
| May-14 | 1.29 | 0.483 | 137 | 137 | 14.6 |
| Jun-14 | 1.22 | 0.457 | 148 | 148 | 15.7 |
| Jul-14 | 1.19 | 1.67 | 94.9 | 96.6 | 16.3 |
| Aug-14 | 1.17 | 0.620 | 88.8 | 89.4 | 23.1 |
| Sep-14 | 1.17 | 0.540 | 90.6 | 91.1 | 18.1 |
| Oct-14 | 1.15 | 0.460 | 101 | 101 | 12.6 |
| Nov-14 | 1.20 | 1.94 | 109 | 111 | 14.8 |
| Dec-14 | 1.91 | 8.07 | 171 | 180 | 14.9 |
| Jan-15 | 1.24 | 0.910 | 128 | 129 | 14.6 |
| Feb-15 | 1.53 | 0.370 | 131 | 131 | 17.0 |
| Mar-15 | 1.30 | 2.01 | 141 | 143 | 15.1 |
| Apr-15 | 1.20 | 0.190 | 119 | 119 | 13.8 |
| May-15 | 1.13 | 1.19 | 123 | 124 | 18.8 |
| Jun-15 | 1.12 | 1.72 | 90.6 | 92.3 | 20.2 |
| Jul-15 | 1.13 | 1.15 | 115 | 116 | 17.1 |
| Aug-15 | 1.13 | 0.899 | 98.5 | 99.4 | 18.0 |
| Sep-15 | 1.08 | 6.11 | 77.4 | 83.5 | 17.1 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 1.07 | 1.82 | 114 | 115 | 25.1 |
| Nov-15 | 1.11 | 3.74 | 126 | 130 | 15.5 |
| Dec-15 | 0.963 | 7.66 | 102 | 110 | 12.4 |
| Jan-16 | 1.41 | 10.1 | 128 | 138 | 10.1 |
| Feb-16 | 1.24 | 1.18 | 132 | 133 | 10.3 |
| Mar-16 | 1.22 | 1.70 | 129 | 130 | 9.20 |
| Apr-16 | 1.30 | 1.18 | 103 | 105 | 18.7 |
| May-16 | 1.30 | 13.2 | 151 | 164 | 15.6 |
| Jun-16 | 1.26 | 1.39 | 129 | 130 | 16.2 |
| Jul-16 | 1.19 | 1.52 | 112 | 113 | 20.6 |
| Aug-16 | 1.21 | 0.715 | 103 | 104 | 18.3 |
| Sep-16 | 1.13 | 1.44 | 95.2 | 96.6 | 13.1 |
| Oct-16 | 1.15 | 0.555 | 76.8 | 77.3 | 16.2 |
| Nov-16 | 1.09 | 0.861 | 106 | 107 | 12.9 |
| Dec-16 | 1.24 | 1.81 | 181 | 183 | 21.7 |
| Jan-17 | 2.44 | 2.52 | 204 | 207 | 18.0 |
| Feb-17 | 2.66 | 15.1 | 227 | 242 | 25.7 |
| Mar-17 | 1.80 | 3.03 | 166 | 169 | 4.35 |
| Apr-17 | 1.70 | 1.45 | 138 | 140 | 6.92 |
| May-17 | 1.38 | 1.13 | 113 | 114 | 11.8 |
| Jun-17 | 1.29 | 1.33 | 128 | 129 | 12.8 |
| Jul-17 | 1.23 | 1.07 | 116 | 117 | 10.2 |
| Aug-17 | 1.19 | 1.58 | 113 | 115 | 10.8 |
| Sep-17 | 1.17 | 0.831 | 105 | 106 | 10.9 |
| Oct-17 | 1.15 | 1.61 | 97.4 | 99.0 | 17.4 |
| Nov-17 | 1.24 | 1.74 | 174 | 176 | 29.0 |
| Dec-17 | 1.18 | 1.24 | 128 | 129 | 15.4 |
| Jan-18 | 1.37 | 1.06 | 146 | 147 | 14.1 |
| Feb-18 | 1.23 | 0.501 | 123 | 124 | 13.7 |
| Mar-18 | 1.61 | 1.64 | 139 | 141 | 10.9 |
| Apr-18 | 1.55 | 5.06 | 124 | 129 | 8.62 |
| May-18 | 1.26 | 2.69 | 104 | 106 | 11.8 |
| Jun-18 | 1.21 | 5.07 | 120 | 125 | 16.6 |
| Jul-18 | 1.17 | 4.24 | 115 | 119 | 14.1 |
| Aug-18 | 1.17 | 3.51 | 105 | 109 | 13.6 |
| Sep-18 | 1.14 | 1.95 | 91.2 | 93.1 | 17.4 |
| Oct-18 | 1.11 | 3.29 | 102 | 106 | 13.7 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 1.19 | 2.21 | 91.7 | 93.9 | 13.3 |
| Dec-18 | 1.22 | 6.09 | 122 | 128 | 9.36 |
| Jan-19 | 1.50 | 2.71 | 138 | 141 | 11.0 |
| Feb-19 | 2.06 | 3.32 | 129 | 132 | 5.22 |
| Mar-19 | 1.82 | 9.81 | 143 | 152 | 14.3 |
| Apr-19 | 1.36 | 1.64 | 98.5 | 100 | 6.02 |
| May-19 | 1.31 | 4.32 | 119 | 124 | 6.96 |
| Jun-19 | 1.19 | 5.05 | 101 | 106 | 9.64 |
| Jul-19 | 1.18 | 4.29 | 90.3 | 94.6 | 8.13 |
| Aug-19 | 1.19 | 4.44 | 107 | 111 | 10.2 |
| Sep-19 | 1.14 | 3.85 | 89.8 | 93.7 | 12.4 |
| Oct-19 | 1.16 | 2.58 | 98.7 | 101 | 14.2 |
| Nov-19 | 1.13 | 4.68 | 111 | 115 | 12.8 |
| Dec-19 | 1.31 | 6.40 | 114 | 121 | 11.0 |
| Jan-20 | 1.25 | 2.46 | 95.5 | 98.0 | 9.10 |
| Feb-20 | 1.22 | 5.09 | 116 | 121 | 7.87 |
| Mar-20 | 1.29 | 2.59 | 120 | 123 | 10.6 |
| Apr-20 | 1.30 | 2.35 | 120 | 122 | 13.0 |
| May-20 | 1.23 | 6.51 | 125 | 132 | 13.0 |
| Jun-20 | 1.16 | 1.36 | 104 | 105 | 13.1 |
| Jul-20 | 1.04 | 4.65 | 97.2 | 97.7 | 14.1 |
| Aug-20 | 1.07 | 2.09 | 187 | 98.7 | 13.4 |
| Sep-20 | 1.08 | 2.39 | 102 | 108 | 11.4 |
| Oct-20 | 1.06 | 2.23 | 91.7 | 93.9 | 13.6 |
| Nov-20 | 0.986 | 3.31 | 94.1 | 97.4 | 11.5 |
| Dec-20 | 0.962 | 4.74 | 91.2 | 96.0 | 12.8 |
| Jan-21 | 1.02 | 12.0 | 87.4 | 97.2 | 12.9 |
| Feb-21 | 1.10 | 6.36 | 91.6 | 95.4 | 10.8 |
| Mar-21 | 1.12 | 3.92 | 138 | 142 | 13.8 |
| Apr-21 | 1.07 | 5.18 | 111 | 117 | 12.3 |
| May-21 | 1.03 | 2.44 | 96.1 | 98.6 | 13.6 |
| Jun-21 | 0.983 | 2.59 | 92.4 | 94.9 | 12.6 |
| Jul-21 | 0.954 | 1.80 | 84.7 | 86.5 | 11.0 |
| Aug-21 | 0.969 | 0.667 | 80.7 | 81.4 | 13.7 |
| Sep-21 | 0.956 | 1.55 | 88.8 | 90.4 | 12.6 |
| Oct-21 | 1.21 | 1.49 | 102 | 103 | 13.1 |
| Nov-21 | 0.912 | 0.382 | 86.9 | 87.2 | 12.2 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 1.52 | 2.16 | 89.0 | 91.2 | 13.0 |
| Jan-22 | 1.09 | 0.797 | 103 | 104 | 12.7 |
| Feb-22 | 1.06 | 1.22 | 94.1 | 95.3 | 9.41 |
| Mar-22 | 1.07 | 1.38 | 96.5 | 97.8 | 10.5 |
| Apr-22 | 1.08 | 0.868 | 59.2 | 60.0 | 12.6 |
| May-22 | 1.06 | 1.68 | 67.9 | 69.6 | 10.8 |
| Jun-22 | 0.999 | 1.27 | 18.6 | 19.9 | 6.34 |
| Jul-22 | 0.997 | 1.16 | 30.2 | 31.3 | 12.8 |
| Aug-22 | 0.990 | 1.34 | 43.3 | 44.6 | 10.2 |
| Sep-22 | 0.971 | 1.32 | 41.4 | 42.7 | 12.0 |
| Oct-22 | 0.909 | 1.28 | 48.4 | 49.7 | 9.34 |
| Nov-22 | 0.928 | 1.09 | 56.0 | 57.1 | 9.22 |
| Dec-22 | 1.28 | 2.09 | 81.4 | 83.5 | 9.69 |
| Jan-23 | 2.54 | 8.09 | 171 | 179 | 14.0 |
| Feb-23 | 1.39 | 2.76 | 78.9 | 81.7 | 5.70 |
| Mar-23 | 2.37 | 2.62 | 199 | 201 | 11.7 |
| Apr-23 | 1.41 | 1.43 | 80.1 | 81.6 | 3.43 |
| May-23 | 1.19 | 0.787 | 59.0 | 59.8 | 5.41 |
| Jun-23 | 1.09 | 1.16 | 43.8 | 45.0 | 6.38 |
| Jul-23 | 0.988 | 1.07 | 53.5 | 54.6 | 7.41 |
| Aug-23 | 0.994 | 1.37 | 60.8 | 62.2 | 5.70 |
| Sep-23 | 0.997 | 0.152 | 60.7 | 60.9 | 7.97 |
| Oct-23 | 0.931 | 0.453 | 62.7 | 63.1 | 7.31 |
| Nov-23 | 0.987 | 0.225 | 74.0 | 74.2 | 6.43 |
| Dec-23 | 1.06 | 1.00 | 100 | 101 | 8.16 |
| Jan-24 | 1.20 | 1.01 | 84.0 | 85.0 | 4.20 |
| Feb-24 | 1.52 | 2.71 | 156 | 159 | 3.29 |
| Mar-24 | 1.33 | 1.56 | 104 | 106 | 2.90 |
| Apr-24 | 1.10 | 3.12 | 56.7 | 59.8 | 2.43 |
| May-24 | 1.01 | 0.517 | 63.6 | 64.1 | 2.38 |
| Jun-24 | 0.870 | 1.65 | 42.2 | 43.9 | 3.52 |
| Jul-24 | 0.964 | 1.26 | 45.0 | 46.5 | 4.87 |
| Aug-24 | 1.59 | 0.748 | 47.2 | 48.0 | 3.94 |
| Sep-24 | 0.932 | 0.495 | 43.7 | 44.2 | 3.50 |
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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **1.13** | **2.12** | **92.5** | **93.1** | **12.7** |
| **Dry Season**  **Trend \*\*** | **Down** | **None** | **Down** | **Down** | **Down** |
| **Wet Season**  **Average** | **1.33** | **2.94** | **118** | **121** | **12.9** |
| **Average Annual** | **12.5** | **2.60** | **108** | **110** | **12.8** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 14-2. Discharge: Napa Sanitation District Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 0 | 0 | 0 | 0 | 0 |
| Nov-12 | 14.2 | 0.268 | 414 | 415 | 69.8 |
| Dec-12 | 16.6 | 205 | 369 | 574 | 84.4 |
| Jan-13 | 14.7 | 250 | 220 | 470 | 55.8 |
| Feb-13 | 5.99 | 0.113 | 231 | 231 | 21.5 |
| Mar-13 | 9.10 | 73.6 | 314 | 387 | 38.9 |
| Apr-13 | 0 | 0 | 0 | 0 | 0 |
| May-13 | 0 | 0 | 0 | 0 | 0 |
| Jun-13 | 0 | 0 | 0 | 0 | 0 |
| Jul-13 | 0 | 0 | 0 | 0 | 0 |
| Aug-13 | 0 | 0 | 0 | 0 | 0 |
| Sep-13 | 0 | 0 | 0 | 0 | 0 |
| Oct-13 | 0 | 0 | 0 | 0 | 0 |
| Nov-13 | 6.61 | 3.77 | 255 | 259 | 11.6 |
| Dec-13 | 6.08 | 4.25 | 216 | 220 | 8.04 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Jan-14 | 5.85 | 15.4 | 294 | 309 | 18.7 |
| Feb-14 | 9.09 | 5.49 | 310 | 315 | 23.5 |
| Mar-14 | 9.60 | 59.3 | 239 | 299 | 47.0 |
| Apr-14 | 12.0 | 113 | 330 | 443 | 44.5 |
| May-14 | 3.30 | 0.988 | 122 | 122 | 12.8 |
| Jun-14 | 2.70 | 1.09 | 127 | 128 | 6.06 |
| Jul-14 | 0 | 0 | 0 | 0 | 0 |
| Aug-14 | 0 | 0 | 0 | 0 | 0 |
| Sep-14 | 0 | 0 | 0 | 0 | 0 |
| Oct-14 | 0 | 0 | 0 | 0 | 0 |
| Nov-14 | 9.53 | 1.91 | 356 | 358 | 29.3 |
| Dec-14 | 19.4 | 5.30 | 347 | 352 | 91.0 |
| Jan-15 | 11.5 | 63.8 | 433 | 497 | 71.8 |
| Feb-15 | 10.8 | 2.73 | 309 | 312 | 41.1 |
| Mar-15 | 5.42 | 1.51 | 221 | 223 | 29.8 |
| Apr-15 | 7.00 | 0.900 | 319 | 319 | 40.4 |
| May-15 | 0 | 0 | 0 | 0 | 0 |
| Jun-15 | 0 | 0 | 0 | 0 | 0 |
| Jul-15 | 0 | 0 | 0 | 0 | 0 |
| Aug-15 | 0 | 0 | 0 | 0 | 0 |
| Sep-15 | 0 | 0 | 0 | 0 | 0 |
| Oct-15 | 0 | 0 | 0 | 0 | 0 |
| Nov-15 | 11.4 | 5.66 | 298 | 304 | 76.1 |
| Dec-15 | 10.7 | 2.26 | 228 | 231 | 37.0 |
| Jan-16 | 14.8 | 27.7 | 315 | 343 | 76.5 |
| Feb-16 | 10.6 | 0 | 376 | 376 | 74.3 |
| Mar-16 | 15.3 | 84.3 | 342 | 426 | 78.3 |
| Apr-16 | 9.74 | 78.1 | 288 | 366 | 72.6 |
| May-16 | 0 | 0 | 0 | 0 | 0 |
| Jun-16 | 0 | 0 | 0 | 0 | 0 |
| Jul-16 | 0 | 0 | 0 | 0 | 0 |
| Aug-16 | 0 | 0 | 0 | 0 | 0 |
| Sep-16 | 0 | 0 | 0 | 0 | 0 |
| Oct-16 | 0 | 0 | 0 | 0 | 0 |
| Nov-16 | 14.2 | 109 | 210 | 319 | 168 |
| Dec-16 | 11.5 | 0.778 | 311 | 312 | 41.1 |
| Jan-17 | 17.1 | 43.5 | 330 | 374 | 50.3 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Feb-17 | 25.7 | 372 | 371 | 743 | 103 |
| Mar-17 | 23.4 | 517 | 311 | 829 | 209 |
| Apr-17 | 15.4 | 194 | 333 | 528 | 134 |
| May-17 | 0 | 0 | 0 | 0 | 0 |
| Jun-17 | 0 | 0 | 0 | 0 | 0 |
| Jul-17 | 0 | 0 | 0 | 0 | 0 |
| Aug-17 | 0 | 0 | 0 | 0 | 0 |
| Sep-17 | 0 | 0 | 0 | 0 | 0 |
| Oct-17 | 0 | 0 | 0 | 0 | 0 |
| Nov-17 | 10.2 | 18.1 | 317 | 336 | 23.6 |
| Dec-17 | 5.29 | 48.8 | 195 | 244 | 28.8 |
| Jan-18 | 9.74 | 194 | 255 | 449 | 93.9 |
| Feb-18 | 5.88 | 46.1 | 241 | 287 | 10.9 |
| Mar-18 | 12.9 | 36.3 | 262 | 298 | 51.4 |
| Apr-18 | 10.7 | 114 | 209 | 323 | 60.7 |
| May-18 | 0 | 0 | 0 | 0 | 0 |
| Jun-18 | 0 | 0 | 0 | 0 | 0 |
| Jul-18 | 0 | 0 | 0 | 0 | 0 |
| Aug-18 | 0 | 0 | 0 | 0 | 0 |
| Sep-18 | 0 | 0 | 0 | 0 | 0 |
| Oct-18 | 0 | 0 | 0 | 0 | 0 |
| Nov-18 | 8.79 | 130 | 119 | 249 | 20.7 |
| Dec-18 | 12.2 | 171 | 312 | 464 | 148 |
| Jan-19 | 15.9 | 436 | 345 | 781 | 244 |
| Feb-19 | 18.1 | 399 | 359 | 758 | 191 |
| Mar-19 | 19.9 | 388 | 385 | 772 | 166 |
| Apr-19 | 14.1 | 377 | 263 | 680 | 264 |
| May-19 | 0 | 0 | 0 | 0 | 0 |
| Jun-19 | 0 | 0 | 0 | 0 | 0 |
| Jul-19 | 0 | 0 | 0 | 0 | 0 |
| Aug-19 | 0 | 0 | 0 | 0 | 0 |
| Sep-19 | 0 | 0 | 0 | 0 | 0 |
| Oct-19 | 0 | 0 | 0 | 0 | 0 |
| Nov-19 | 8.84 | 134 | 300 | 434 | 114 |
| Dec-19 | 10.4 | 39.9 | 268 | 317 | 62.2 |
| Jan-20 | 8.75 | 5.78 | 375 | 373 | 57.1 |
| Feb-20 | 6.30 | 2.19 | 334 | 336 | 58.0 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Mar-20 | 5.57 | 66.6 | 138 | 205 | 89.6 |
| Apr-20 | 7.59 | 114 | 261 | 375 | 162 |
| May-20 | 0 | 0 | 0 | 0 | 0 |
| Jun-20 | 0 | 0 | 0 | 0 | 0 |
| Jul-20 | 0 | 0 | 0 | 0 | 0 |
| Aug-20 | 0 | 0 | 0 | 0 | 0 |
| Sep-20 | 0 | 0 | 0 | 0 | 0 |
| Oct-20 | 0 | 0 | 0 | 0 | 0 |
| Nov-20 | 0.745 | 0.192 | 46.4 | 46.6 | 2.00 |
| Dec-20 | 2.84 | 0.712 | 93.8 | 94.6 | 8.57 |
| Jan-21 | 3.16 | 20.9 | 86.3 | 107 | 25.0 |
| Feb-21 | 2.37 | 13.9 | 58.3 | 72.3 | 18.3 |
| Mar-21 | 5.59 | 58.2 | 142 | 200 | 45.6 |
| Apr-21 | 0.696 | 8.47 | 11.3 | 19.8 | 8.34 |
| May-21 | 0 | 0 | 0 | 0 | 0 |
| Jun-21 | 0 | 0 | 0 | 0 | 0 |
| Jul-21 | 0 | 0 | 0 | 0 | 0 |
| Aug-21 | 0 | 0 | 0 | 0 | 0 |
| Sep-21 | 0 | 0 | 0 | 0 | 0 |
| Oct-21 | 0 | 0 | 0 | 0 | 0 |
| Nov-21 | 2.55 | 7.40 | 97.4 | 105 | 11.6 |
| Dec-21 | 17.8 | 290 | 226 | 517 | 163 |
| Jan-22 | 8.65 | 59.2 | 298 | 357 | 66.4 |
| Feb-22 | 2.84 | 36.4 | 191 | 227 | 43.4 |
| Mar-22 | 2.07 | 17.4 | 105 | 122 | 16.8 |
| Apr-22 | 3.96 | 2.50 | 98.8 | 101 | 3.30 |
| May-22 | 0 | 0 | 0 | 0 | 0 |
| Jun-22 | 0 | 0 | 0 | 0 | 0 |
| Jul-22 | 0 | 0 | 0 | 0 | 0 |
| Aug-22 | 0 | 0 | 0 | 0 | 0 |
| Sep-22 | 0 | 0 | 0 | 0 | 0 |
| Oct-22 | 0 | 0 | 0 | 0 | 0 |
| Nov-22 | 2.15 | 7.67 | 103 | 111 | 14.3 |
| Dec-22 | 10.9 | 92.2 | 295 | 387 | 139 |
| Jan-23 | 24.5 | 511 | 332 | 843 | 314 |
| Feb-23 | 9.53 | 55.9 | 263 | 319 | 71.5 |
| Mar-23 | 21.3 | 290 | 362 | 653 | 244 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Apr-23 | 9.15 | 65.7 | 264 | 330 | 76.3 |
| May-23 | 0 | 0 | 0 | 0 | 0 |
| Jun-23 | 0 | 0 | 0 | 0 | 0 |
| Jul-23 | 0 | 0 | 0 | 0 | 0 |
| Aug-23 | 0 | 0 | 0 | 0 | 0 |
| Sep-23 | 0 | 0 | 0 | 0 | 0 |
| Oct-23 | 0 | 0 | 0 | 0 | 0 |
| Nov-23 | 10.3 | 19.7 | 244 | 263 | 107 |
| Dec-23 | 8.88 | 3.23 | 209 | 213 | 61.1 |
| Jan-24 | 13.9 | 87.7 | 238 | 326 | 90.3 |
| Feb-24 | 17.9 | 498 | 237 | 735 | 191 |
| Mar-24 | 11.8 | 219 | 198 | 417 | 104 |
| Apr-24 | 8.48 | 220 | 248 | 468 | 98.2 |
| May-24 | 0 | 0 | 0 | 0 | 0 |
| Jun-24 | 0 | 0 | 0 | 0 | 0 |
| Jul-24 | 0 | 0 | 0 | 0 | 0 |
| Aug-24 | 0 | 0 | 0 | 0 | 0 |
| Sep-24 | 0 | 0 | 0 | 0 | 0 |
|  |  |  |  |  |  |
| **Dry Season Average** | **0.100** | **0.0346** | **4.14** | **4.18** | **0.314** |
| **Dry Season**  **Trend** | **--\*\*** | **--\*\*** | **--\*\*** | **--\*\*** | **--\*\*** |
| **Wet Season**  **Average** | **8.83** | **89.1** | **216** | **305** | **65.8** |
| **Average Annual** | **5.19** | **52.0** | **128** | **180** | **38.5** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* No dry season trending analysis was performed on Napa as there are only two months (May and June 2014) that Napa has discharged since sampling began in 2012.

**Table 15-1. Discharge: Novato Monthly Flows and Loads1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 4.44 | -- | -- | -- | -- |
| Nov-12 | 4.39 | 3.63 | 209 | 213 | 2.65 |
| Dec-12 | 5.21 | 2.16 | 179 | 181 | 13.6 |
| Jan-13 | 5.34 | 2.30 | 200 | 203 | 23.7 |
| Feb-13 | 4.79 | 27.3 | 231 | 258 | 36.0 |
| Mar-13 | 5.39 | 41.0 | 255 | 296 | 51.1 |
| Apr-13 | 4.64 | 1.85 | 231 | 233 | 40.9 |
| May-13 | 4.03 | 1.52 | 198 | 200 | 5.32 |
| Jun-13 | 0 | 0 | 0 | 0 | 0 |
| Jul-13 | 0 | 0 | 0 | 0 | 0 |
| Aug-13 | 0 | 0 | 0 | 0 | 0 |
| Sep-13 | 0 | 0 | 0 | 0 | 0 |
| Oct-13 | 4.33 | 5.24 | 207 | 212 | 16.3 |
| Nov-13 | 4.07 | 2.16 | 186 | 188 | 3.39 |
| Dec-13 | 4.14 | 36.4 | 189 | 225 | 3.82 |
| Jan-14 | 4.30 | 42.6 | 169 | 211 | 8.23 |
| Feb-14 | 4.57 | 17.8 | 147 | 165 | 5.18 |
| Mar-14 | 4.70 | 2.52 | 235 | 238 | 35.8 |
| Apr-14 | 4.88 | 1.66 | 185 | 187 | 49.8 |
| May-14 | 3.71 | 11.9 | 200 | 212 | 8.09 |
| Jun-14 | 0 | 0 | 0 | 0 | 0 |
| Jul-14 | 0 | 0 | 0 | 0 | 0 |
| Aug-14 | 0 | 0 | 0 | 0 | 0 |
| Sep-14 | 0 | 0 | 0 | 0 | 0 |
| Oct-14 | 3.32 | 2.88 | 220 | 222 | 41.0 |
| Nov-14 | 3.80 | 10.1 | 228 | 238 | 4.30 |
| Dec-14 | 11.1 | 10.6 | 544 | 555 | 123 |
| Jan-15 | 4.38 | 33.6 | 138 | 172 | 52.2 |
| Feb-15 | 5.78 | 89.0 | 158 | 247 | 5.70 |
| Mar-15 | 4.05 | 3.10 | 208 | 212 | 14.4 |
| Apr-15 | 3.88 | 54.3 | 122 | 176 | 2.90 |
| May-15 | 3.68 | 6.00 | 182 | 188 | 4.00 |
| Jun-15 | 0 | 0 | 0 | 0 | 0 |
| Jul-15 | 0 | 0 | 0 | 0 | 0 |
| Aug-15 | 0 | 0 | 0 | 0 | 0 |
| Sep-15 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 0 | 0 | 0 | 0 | 0 |
| Nov-15 | 3.46 | 4.81 | 179 | 183 | 5.36 |
| Dec-15 | 4.24 | 4.67 | 227 | 231 | 3.82 |
| Jan-16 | 7.30 | 55.8 | 416 | 472 | 86.2 |
| Feb-16 | 4.52 | 3.43 | 196 | 199 | 4.57 |
| Mar-16 | 7.75 | 3.16 | 237 | 240 | 4.58 |
| Apr-16 | 4.18 | 6.68 | 146 | 152 | 4.25 |
| May-16 | 3.82 | 4.51 | 187 | 191 | 6.22 |
| Jun-16 | 0 | 0 | 0 | 0 | 0 |
| Jul-16 | 0 | 0 | 0 | 0 | 0 |
| Aug-16 | 0 | 0 | 0 | 0 | 0 |
| Sep-16 | 0 | 0 | 0 | 0 | 0 |
| Oct-16\*\*\* | 1.05 | 1.19 | 4.01 | 5.20 | 0.182 |
| Nov-16 | 4.84 | 6.01 | 154 | 160 | 3.51 |
| Dec-16 | 5.99 | 14.7 | 270 | 284 | 6.22 |
| Jan-17 | 12.7 | 123 | 154 | 276 | 19.7 |
| Feb-17 | 12.6 | 223 | 271 | 495 | 54.3 |
| Mar-17 | 6.41 | 5.74 | 199 | 204 | 30.9 |
| Apr-17 | 5.97 | 23.4 | 429 | 452 | 27.4 |
| May-17 | 4.27 | 70.3 | 157 | 228 | 5.86 |
| Jun-17 | 3.85 | 6.71 | 164 | 171 | 2.83 |
| Jul-17 | 0 | 0 | 0 | 0 | 0 |
| Aug-17 | 0 | 0 | 0 | 0 | 0 |
| Sep-17 | 3.27 | 13.2 | 79.2 | 92.5 | 3.60 |
| Oct-17 | 3.40 | 2.38 | 130 | 132 | 2.81 |
| Nov-17 | 4.03 | 14.7 | 179 | 193 | 3.27 |
| Dec-17 | 3.67 | 3.14 | 157 | 160 | 3.57 |
| Jan-18 | 5.11 | 93.0 | 109 | 202 | 10.2 |
| Feb-18 | 3.85 | 12.9 | 164 | 177 | 2.98 |
| Mar-18 | 6.46 | 46.5 | 151 | 198 | 5.15 |
| Apr-18 | 5.28 | 12.7 | 273 | 286 | 3.32 |
| May-18\*\*\* | 1.45 | 9.61 | 96.1 | 106 | 0.186 |
| Jun-18 | 0 | 0 | 0 | 0 | 0 |
| Jul-18 | 0 | 0 | 0 | 0 | 0 |
| Aug-18 | 0 | 0 | 0 | 0 | 0 |
| Sep-18 | 2.44 | 2.41 | 107 | 110 | 1.34 |
| Oct-18 | 3.10 | 5.28 | 129 | 134 | 2.96 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 3.91 | 2.06 | 154 | 156 | 2.57 |
| Dec-18 | 4.71 | 8.23 | 157 | 165 | 2.93 |
| Jan-19 | 8.54 | 111 | 139 | 250 | 11.1 |
| Feb-19 | 12.8 | 195 | 293 | 488 | 97.6 |
| Mar-19 | 8.32 | 155 | 262 | 417 | 37.9 |
| Apr-19 | 4.47 | 105 | 108 | 265 | 2.58 |
| May-19 | 4.51 | 26.3 | 109 | 135 | 2.51 |
| Jun-19 | 3.09 | 75.1 | 83.5 | 245 | 3.66 |
| Jul-19 | 2.70 | 1.35 | 68.4 | 69.7 | 1.03 |
| Aug-19 | 0 | 0 | 0 | 0 | 0 |
| Sep-19\*\*\* | 1.22 | 1.16 | 49.2 | 50.4 | 1.34 |
| Oct-19 | 2.74 | 4.85 | 94.9 | 99.8 | 2.52 |
| Nov-19 | 3.30 | 23.8 | 119 | 143 | 2.74 |
| Dec-19 | 7.96 | 113 | 23.2 | 182 | 4.75 |
| Jan-20 | 5.21 | 21.3 | 171 | 192 | 21.3 |
| Feb-20 | 4.05 | 25.1 | 201 | 226 | 5.22 |
| Mar-20 | 3.74 | 24.3 | 147 | 172 | 3.19 |
| Apr-20 | 3.50 | 38.5 | 178 | 216 | 38.5 |
| May-20 | 0 | 0 | 0 | 0 | 0 |
| Jun-20 | 0 | 0 | 0 | 0 | 0 |
| Jul-20 | 0 | 0 | 0 | 0 | 0 |
| Aug-20 | 0 | 0 | 0 | 0 | 0 |
| Sep-20 | 2.51 | 25.8 | 89.7 | 116 | 1.15 |
| Oct-20 | 2.67 | 16.4 | 79.5 | 95.8 | 1.56 |
| Nov-20 | 3.31 | 52.3 | 83.3 | 200 | 2.11 |
| Dec-20 | 3.78 | 44.2 | 134 | 178 | 2.41 |
| Jan-21 | 4.27 | 23.5 | 135 | 158 | 2.98 |
| Feb-21 | 4.09 | 44.5 | 129 | 173 | 4.93 |
| Mar-21 | 3.71 | 64.7 | 140 | 232 | 3.31 |
| Apr-21\*\*\* | 1.35 | 11.8 | 43.0 | 54.8 | 1.48 |
| May-21 | 0 | 0 | 0 | 0 | 0 |
| Jun-21 | 0 | 0 | 0 | 0 | 0 |
| Jul-21 | 0 | 0 | 0 | 0 | 0 |
| Aug-21 | 0 | 0 | 0 | 0 | 0 |
| Sep-21\*\*\* | 1.32 | 7.20 | 33.8 | 41.0 | 0.648 |
| Oct-21 | 4.55 | 14.5 | 103 | 118 | 2.28 |
| Nov-21 | 4.33 | 29.4 | 113 | 142 | 2.78 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 6.94 | 41.3 | 75.9 | 117 | 3.33 |
| Jan-22 | 4.76 | 88.1 | 106 | 254 | 22.1 |
| Feb-22 | 3.74 | 31.8 | 174 | 205 | 24.6 |
| Mar-22 | 3.20 | 26.6 | 123 | 149 | 27.6 |
| Apr-22\*\*\* | 2.67 | 47.7 | 67.0 | 120 | 4.39 |
| May-22 | 0 | 0 | 0 | 0 | 0 |
| Jun-22 | 0 | 0 | 0 | 0 | 0 |
| Jul-22 | 0 | 0 | 0 | 0 | 0 |
| Aug-22 | 0 | 0 | 0 | 0 | 0 |
| Sep-22 | 0 | 0 | 0 | 0 | 0 |
| Oct-22 | 2.59 | 31.5 | 73.4 | 105 | 1.57 |
| Nov-22 | 3.37 | 1.62 | 118 | 119 | 2.03 |
| Dec-22 | 5.88 | 43.5 | 93.1 | 137 | 2.48 |
| Jan-23 | 13.0 | 291 | 242 | 533 | 11.3 |
| Feb-23 | 6.10 | 91.2 | 117 | 233 | 9.67 |
| Mar-23 | 10.8 | 271 | 150 | 776 | 19.4 |
| Apr-23 | 4.97 | 60.3 | 138 | 199 | 8.71 |
| May-23 | 3.76 | 11.8 | 174 | 186 | 14.7 |
| Jun-23 | 3.00 | 15.8 | 121 | 137 | 3.03 |
| Jul-23 | 2.77 | 17.5 | 187 | 204 | 64.1 |
| Aug-23 | 0 | 0 | 0 | 0 | 0 |
| Sep-23\*\*\* | 1.56 | 14.9 | 48.7 | 63.5 | 2.06 |
| Oct-23 | 2.90 | 0.200 | 110 | 110 | 1.70 |
| Nov-23 | 3.79 | 4.81 | 148 | 153 | 2.34 |
| Dec-23 | 5.25 | 75.0 | 140 | 215 | 6.49 |
| Jan-24 | 7.35 | 154 | 52.5 | 207 | 13.7 |
| Feb-24 | 9.41 | 82.1 | 97.7 | 180 | 28.2 |
| Mar-24 | 7.08 | 25.2 | 218 | 243 | 19.8 |
| Apr-24 | 5.08 | 4.33 | 153 | 158 | 2.53 |
| May-24 | 3.54 | 6.64 | 194 | 201 | 35.6 |
| Jun-24 | 0 | 0 | 0 | 0 | 0 |
| Jul-24 | 0 | 0 | 0 | 0 | 0 |
| Aug-24 | 0 | 0 | 0 | 0 | 0 |
| Sep-24 | 0 | 0 | 0 | 0 | 0 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **1.01** | **5.89** | **45.1** | **52.6** | **2.99** |
| **Dry Season**  **Trend** | **--\*\*** | **--\*\*** | **--\*\*** | **--\*\*** | **--\*\*** |
| **Wet Season**  **Average** | **5.14** | **42.9** | **166** | **217** | **15.5** |
| **Average Annual** | **3.42** | **28.0** | **118** | **151** | **10.5** |

1 For non-detects after October 1, 2023, 1/2 of the method detection limit was used to quantify values. Prior to October 1, 2023, non-detect values used the provided method detection limit.

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* No dry season trending analysis was performed on Novato as the facility typically does not discharge during most dry season months.

\*\*\* Lower than typical monthly averages due to discharge to the Bay only occurring during a portion of the month.

**Table 16-2. Discharge: Palo Alto Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 22.1 | 8.36 | 2,300 | 2,310 | 389 |
| Nov-12 | 20.5 | 7.75 | 2,130 | 2,140 | 349 |
| Dec-12 | 23.6 | 23.9 | 2,070 | 2,100 | 275 |
| Jan-13 | 20.4 | 9.88 | 2,030 | 2,040 | 283 |
| Feb-13 | 19.1 | 15.3 | 2,280 | 2,290 | 282 |
| Mar-13 | 18.6 | 9.16 | 2,150 | 2,160 | 306 |
| Apr-13 | 21.2 | 10.4 | 2,490 | 2,500 | 345 |
| May-13 | 24.1 | 11.8 | 2,740 | 2,750 | 401 |
| Jun-13 | 23.9 | 11.8 | 2,850 | 2,860 | 411 |
| Jul-13 | 22.3 | 14.3 | 2,360 | 2,370 | 400 |
| Aug-13 | 21.2 | 14.9 | 2,330 | 2,340 | 362 |
| Sep-13 | 21.1 | 22.8 | 2,390 | 2,410 | 355 |
| Oct-13 | 21.8 | 17.7 | 2,350 | 2,370 | 383 |
| Nov-13 | 20.2 | 21.0 | 2,330 | 2,350 | 336 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-13 | 17.2 | 10.0 | 1,920 | 1,930 | 304 |
| Jan-14 | 18.1 | 10.4 | 2,030 | 2,040 | 298 |
| Feb-14 | 18.8 | 11.4 | 2,320 | 2,330 | 347 |
| Mar-14 | 18.7 | 9.42 | 2,240 | 2,250 | 337 |
| Apr-14 | 17.2 | 8.45 | 1,920 | 1,920 | 311 |
| May-14 | 19.1 | 9.40 | 2,110 | 2,120 | 370 |
| Jun-14 | 17.8 | 8.78 | 2,130 | 2,140 | 345 |
| Jul-14 | 22.4 | 11.0 | 2,280 | 2,290 | 423 |
| Aug-14 | 18.1 | 26.2 | 1,890 | 1,910 | 351 |
| Sep-14 | 20.5 | 10.1 | 2,250 | 2,260 | 417 |
| Oct-14 | 18.7 | 8.94 | 2,260 | 2,270 | 380 |
| Nov-14 | 19.2 | 27.7 | 2,470 | 2,490 | 403 |
| Dec-14 | 25.5 | 23.8 | 1,890 | 1,910 | 307 |
| Jan-15 | 19.6 | 19.3 | 1,960 | 1,980 | 312 |
| Feb-15 | 18.2 | 20.4 | 1,790 | 1,810 | 311 |
| Mar-15 | 17.3 | 8.52 | 1,970 | 1,970 | 306 |
| Apr-15 | 15.5 | 17.5 | 1,940 | 1,960 | 301 |
| May-15 | 18.6 | 9.47 | 2,320 | 2,330 | 367 |
| Jun-15 | 19.8 | 15.6 | 2,390 | 2,410 | 404 |
| Jul-15 | 15.2 | 29.6 | 1,630 | 1,660 | 341 |
| Aug-15 | 17.8 | 21.6 | 2,120 | 2,140 | 355 |
| Sep-15 | 21.1 | 10.4 | 2,600 | 2,610 | 438 |
| Oct-15 | 21.3 | 10.5 | 2,410 | 2,420 | 477 |
| Nov-15 | 22.0 | 10.8 | 2,460 | 2,470 | 449 |
| Dec-15 | 22.5 | 11.1 | 2,850 | 2,860 | 465 |
| Jan-16 | 24.5 | 12.1 | 2,870 | 2,880 | 419 |
| Feb-16 | 23.2 | 11.4 | 2,760 | 2,770 | 423 |
| Mar-16 | 24.9 | 12.9 | 2,800 | 2,810 | 434 |
| Apr-16 | 22.3 | 13.9 | 2,360 | 2,380 | 425 |
| May-16 | 22.6 | 73.4 | 2,860 | 2,930 | 450 |
| Jun-16 | 21.8 | 13.6 | 2,480 | 2,490 | 465 |
| Jul-16 | 20.4 | 12.1 | 2,430 | 2,440 | 441 |
| Aug-16 | 22.0 | 8.89 | 2,890 | 2,890 | 465 |
| Sep-16 | 21.0 | 21.1 | 2,430 | 2,450 | 429 |
| Oct-16 | 22.1 | 9.67 | 2,870 | 2,880 | 482 |
| Nov-16 | 22.2 | 8.12 | 2,990 | 3,000 | 470 |
| Dec-16 | 20.9 | 3.86 | 2,330 | 2,330 | 390 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Jan-17 | 30.2 | 11.5 | 3,000 | 3,010 | 388 |
| Feb-17 | 34.7 | 27.0 | 3,120 | 3,150 | 402 |
| Mar-17 | 28.0 | 13.6 | 2,930 | 2,950 | 435 |
| Apr-17 | 25.6 | 4.20 | 2,800 | 2,810 | 427 |
| May-17 | 23.2 | 11.0 | 2,870 | 2,880 | 447 |
| Jun-17 | 21.2 | 10.6 | 2,280 | 2,290 | 376 |
| Jul-17 | 17.9 | 27.7 | 2,010 | 2,040 | 356 |
| Aug-17 | 16.3 | 14.9 | 1,810 | 1,820 | 292 |
| Sep-17 | 15.9 | 2.14 | 1,590 | 1,590 | 300 |
| Oct-17 | 14.2 | 2.02 | 1,670 | 1,670 | 309 |
| Nov-17 | 17.5 | 2.13 | 1,980 | 1,980 | 329 |
| Dec-17 | 17.4 | 4.22 | 1,970 | 1,970 | 316 |
| Jan-18 | 20.8 | 8.38 | 2,250 | 2,260 | 352 |
| Feb-18 | 19.3 | 3.91 | 2,190 | 2,190 | 353 |
| Mar-18 | 21.2 | 22.8 | 2,530 | 2,560 | 384 |
| Apr-18 | 21.2 | 15.6 | 2,430 | 2,440 | 387 |
| May-18 | 19.8 | 72.7 | 2,230 | 2,300 | 393 |
| Jun-18 | 18.9 | 12.4 | 2,030 | 2,040 | 366 |
| Jul-18 | 18.5 | 12.4 | 2,040 | 2,060 | 360 |
| Aug-18 | 19.3 | 12.1 | 2,200 | 2,210 | 379 |
| Sep-18 | 20.9 | 21.0 | 2,440 | 2,460 | 414 |
| Oct-18 | 21.5 | 10.3 | 2,480 | 2,490 | 427 |
| Nov-18 | 21.0 | 14.0 | 2,350 | 2,360 | 443 |
| Dec-18 | 22.4 | 10.1 | 2,420 | 2,430 | 414 |
| Jan-19 | 25.1 | 10.2 | 2,470 | 2,480 | 384 |
| Feb-19 | 29.2 | 10.4 | 2,930 | 2,940 | 416 |
| Mar-19 | 31.0 | 19.7 | 2,840 | 2,860 | 435 |
| Apr-19 | 24.9 | 10.8 | 2,360 | 2,370 | 395 |
| May-19 | 20.5 | 11.6 | 2,320 | 2,330 | 349 |
| Jun-19 | 18.3 | 11.4 | 1,880 | 1,890 | 313 |
| Jul-19 | 14.2 | 5.75 | 1,590 | 1,590 | 252 |
| Aug-19 | 13.8 | 4.40 | 1,590 | 1,600 | 256 |
| Sep-19 | 20.4 | 8.35 | 2,300 | 2,310 | 384 |
| Oct-20 | 20.5 | 9.73 | 2,550 | 2,560 | 424 |
| Nov-19 | 19.8 | 17.8 | 2,520 | 2,540 | 396 |
| Dec-19 | 21.6 | 6.03 | 2,350 | 2,360 | 375 |
| Jan-20 | 21.7 | 5.88 | 2,540 | 2,540 | 367 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Feb-20 | 20.7 | 5.76 | 2,490 | 2,490 | 382 |
| Mar-20 | 21.4 | 14.7 | 2,400 | 2,410 | 363 |
| Apr-20 | 20.4 | 5.37 | 2,140 | 2,150 | 327 |
| May-20 | 18.2 | 4.78 | 2,180 | 2,190 | 318 |
| Jun-20 | 18.4 | 4.80 | 1,910 | 1,920 | 290 |
| Jul-20 | 17.3 | 4.41 | 1,820 | 1,830 | 274 |
| Aug-20 | 16.8 | 19.6 | 1,800 | 1,820 | 297 |
| Sep-20 | 16.8 | 7.98 | 1,890 | 1,900 | 301 |
| Oct-20 | 16.2 | 13.0 | 1,800 | 1,810 | 288 |
| Nov-20 | 16.6 | 4.35 | 1,990 | 1,990 | 298 |
| Dec-20 | 16.8 | 22.3 | 1,810 | 1,830 | 267 |
| Jan-21 | 17.9 | 39.3 | 1,870 | 1,910 | 281 |
| Feb-21 | 18.2 | 6.06 | 2,040 | 2,050 | 299 |
| Mar-21 | 17.5 | 6.36 | 2,010 | 2,010 | 304 |
| Apr-21 | 17.0 | 8.77 | 1,850 | 1,860 | 296 |
| May-21 | 17.4 | 11.7 | 2,220 | 2,230 | 345 |
| Jun-21 | 17.1 | 6.75 | 2,120 | 2,130 | 329 |
| Jul-21 | 16.3 | 10.7 | 1,960 | 1,970 | 298 |
| Aug-21 | 16.8 | 11.3 | 1,700 | 1,710 | 324 |
| Sep-21 | 17.4 | 6.50 | 1,930 | 1,940 | 337 |
| Oct-21 | 18.4 | 12.0 | 2,080 | 2,100 | 334 |
| Nov-21 | 18.8 | 6.27 | 2,070 | 2,070 | 364 |
| Dec-21 | 20.9 | 5.55 | 2,250 | 2,250 | 334 |
| Jan-22 | 19.3 | 5.04 | 2,740 | 2,740 | 319 |
| Feb-22 | 16.8 | 6.44 | 2,060 | 2,070 | 306 |
| Mar-22 | 14.7 | 3.77 | 1,720 | 1,730 | 271 |
| Apr-22 | 14.1 | 12.4 | 1,710 | 1,720 | 263 |
| May-22 | 14.6 | 11.8 | 2,030 | 2,040 | 306 |
| Jun-22 | 16.9 | 15.1 | 2,370 | 2,380 | 352 |
| Jul-22 | 16.0 | 4.97 | 2,090 | 2,090 | 319 |
| Aug-22 | 16.6 | 17.2 | 2,320 | 2,340 | 351 |
| Sep-22 | 16.4 | 8.69 | 2,280 | 2,290 | 342 |
| Oct-22 | 16.6 | 11.3 | 2,260 | 2,270 | 335 |
| Nov-22 | 17.9 | 13.8 | 2,600 | 2,620 | 390 |
| Dec-22 | 21.4 | 10.6 | 2,580 | 2,590 | 329 |
| Jan-23 | 33.2 | 28.7 | 2,420 | 2,450 | 345 |
| Feb-23 | 24.3 | 28.0 | 2,480 | 2,510 | 341 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Mar-23 | 32.3 | 37.9 | 2,510 | 2,550 | 335 |
| Apr-23 | 24.2 | 37.8 | 2,500 | 2,530 | 346 |
| May-23 | 21.7 | 19.0 | 2,620 | 2,640 | 367 |
| Jun-23 | 19.0 | 22.0 | 2,320 | 2,340 | 326 |
| Jul-23 | 17.5 | 19.3 | 2,380 | 2,400 | 339 |
| Aug-23 | 18.0 | 27.0 | 2,240 | 2,260 | 325 |
| Sep-23 | 15.8 | 26.9 | 1,850 | 1,880 | 266 |
| Oct-23 | 14.0 | 52.9 | 1,480 | 1,530 | 261 |
| Nov-23 | 15.4 | 125 | 1,470 | 1,650 | 263 |
| Dec-23 | 16.9 | 134 | 1,860 | 1,990 | 335 |
| Jan-24 | 21.3 | 146 | 1,590 | 1,730 | 278 |
| Feb-24 | 30.3 | 147 | 2,350 | 2,470 | 365 |
| Mar-24 | 21.9 | 84.1 | 1,510 | 1,600 | 286 |
| Apr-24 | 21.2 | 109 | 1,780 | 1,880 | 311 |
| May-24 | 22.6 | 116 | 1,880 | 1,990 | 327 |
| Jun-24 | 19.9 | 71.4 | 1,880 | 1,960 | 309 |
| Jul-24 | 17.2 | 10.2 | 1,810 | 1,820 | 298 |
| Aug-24 | 18.4 | 193 | 1,860 | 2,050 | 302 |
| Sep-24 | 20.6 | 195 | 2,160 | 2,450 | 364 |
|  |  |  |  |  |  |
| **Dry Season Average** | **18.9** | **24.0** | **2,170** | **2,200** | **354** |
| **Dry Season**  **Trend \*\*** | **Down** | **--\*\*\*** | **Down** | **Down** | **Down** |
| **Wet Season**  **Average** | **21.0** | **21.3** | **2,270** | **2,290** | **353** |
| **Average Annual** | **20.1** | **22.4** | **2,230** | **2,250** | **354** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

\*\*\* Ammonia not considered in the dry season trending as the plant has ammonia discharge limits and it reliably nitrifies.

**Table 17-1. Discharge: Paradise Cove Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 0.0144 | 0.00708 | 2.18 | 2.19 | 0.327 |
| Nov-12 | 0.0156 | 1.24 | 0.0113 | 1.25 | 0.195 |
| Dec-12 | 0.0199 | 0.0218 | 3.16 | 3.18 | 0.263 |
| Jan-13 | 0.0138 | 1.10 | 0.0282 | 1.12 | 0.130 |
| Feb-13 | 0.0129 | 1.51 | 0.191 | 1.70 | 0.200 |
| Mar-13 | 0.0132 | 0.0349 | 2.51 | 2.54 | 0.309 |
| Apr-13 | 0.0130 | 0.0216 | 1.67 | 1.69 | 0.339 |
| May-13 | 0.0150 | 0.0198 | 2.78 | 2.80 | 0.346 |
| Jun-13 | 0.0140 | 0.0370 | 2.20 | 2.23 | 0.323 |
| Jul-13 | 0.0133 | -- | -- | -- | -- |
| Aug-13 | 0.0139 | -- | -- | -- | -- |
| Sep-13 | 0.0137 | -- | -- | -- | -- |
| Oct-13 | 0.0144 | -- | -- | -- | -- |
| Nov-13 | 0.0143 | -- | -- | -- | -- |
| Dec-13 | 0.0141 | -- | -- | -- | -- |
| Jan-14 | 0.0127 | -- | -- | -- | -- |
| Feb-14 | 0.0149 | -- | -- | -- | -- |
| Mar-14 | 0.0138 | -- | -- | -- | -- |
| Apr-14 | 0.0162 | -- | -- | -- | -- |
| May-14 | 0.0132 | -- | -- | -- | -- |
| Jun-14 | 0.0132 | -- | -- | -- | -- |
| Jul-14 | 0.0121 | -- | -- | -- | -- |
| Aug-14 | 0.0128 | 0.748 | 0.112 | 0.860 | 0.115 |
| Sep-14 | 0.0137 | -- | -- | -- | -- |
| Oct-14 | 0.0133 | -- | -- | -- | -- |
| Nov-14 | 0.0136 | 0.00689 | 2.41 | 2.41 | 0.321 |
| Dec-14 | 0.0202 | -- | -- | -- | -- |
| Jan-15 | 0.0124 | -- | -- | -- | -- |
| Feb-15 | 0.0124 | -- | -- | -- | -- |
| Mar-15 | 0.0137 | -- | -- | -- | -- |
| Apr-15 | 0.0118 | -- | -- | -- | -- |
| May-15 | 0.0128 | -- | -- | -- | -- |
| Jun-15 | 0.0128 | 0.0146 | 2.33 | 2.35 | 0.356 |
| Jul-15 | -- | -- | -- | -- | -- |
| Aug-15 | 0.0122 | 0.00924 | 2.86 | 2.87 | 0.397 |
| Sep-15 | -- | -- | -- | -- | -- |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | -- | -- | -- | -- | -- |
| Nov-15 | -- | -- | -- | -- | -- |
| Dec-15 | -- | -- | -- | -- | -- |
| Jan-16 | -- | -- | -- | -- | -- |
| Feb-16 | -- | -- | -- | -- | -- |
| Mar-16 | -- | -- | -- | -- | -- |
| Apr-16 | -- | -- | -- | -- | -- |
| May-16 | -- | -- | -- | -- | -- |
| Jun-16 | 0.0137 | 1.35 | 0.180 | 1.53 | 0.223 |
| Jul-16 | 0.0110 | -- | -- | -- | -- |
| Aug-16 | 0.0140 | -- | -- | -- | -- |
| Sep-16 | 0.0130 | -- | -- | -- | -- |
| Oct-16 | 0.0139 | 0.0818 | 1.43 | 1.51 | 0.300 |
| Nov-16 | 0.0140 | -- | -- | -- | -- |
| Dec-16 | 0.0160 | -- | -- | -- | -- |
| Jan-17 | 0.0220 | -- | -- | -- | -- |
| Feb-17 | 0.0210 | -- | -- | -- | -- |
| Mar-17 | 0.0140 | -- | -- | -- | -- |
| Apr-17 | 0.0140 | -- | -- | -- | -- |
| May-17 | 0.0131 | 0.0165 | 2.74 | 2.75 | 0.403 |
| Jun-17 | 0.0130 | -- | -- | -- | -- |
| Jul-17 | 0.0113 | -- | -- | -- | -- |
| Aug-17 | 0.0123 | -- | -- | -- | -- |
| Sep-17 | 0.0129 | 0.0174 | 2.46 | 2.48 | 0.781 |
| Oct-17 | 0.0131 | -- | -- | -- | -- |
| Nov-17 | 0.0138 | -- | -- | -- | -- |
| Dec-17 | 0.0137 | -- | -- | -- | -- |
| Jan-18 | 0.0141 | -- | -- | -- | -- |
| Feb-18 | 0.0139 | -- | -- | -- | -- |
| Mar-18 | 0.0164 | -- | -- | -- | -- |
| Apr-18 | 0.0147 | -- | -- | -- | -- |
| May-18 | 0.0136 | 0.0149 | 2.07 | 2.09 | 0.726 |
| Jun-18 | 0.0142 | -- | -- | -- | -- |
| Jul-18 | 0.0159 | 0.0159 | -- | -- | -- |
| Aug-18 | 0.0239 | 0.0239 | -- | -- | -- |
| Sep-18 | 0.0240 | 0.0240 | 2.14 | 2.13 | 0.255 |
| Oct-18 | 0.0126 | 0.0229 | -- | -- | -- |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 0.0162 | 0.0102 | -- | -- | -- |
| Dec-18 | 0.0142 | 0.0469 | -- | -- | -- |
| Jan-19 | 0.0179 | 0.0277 | 1.44 | 1.47 | 0.187 |
| Feb-19 | 0.0286 | 0.0401 | -- | -- | -- |
| Mar-19 | 0.0206 | -- | -- | -- | -- |
| Apr-19 | 0.0144 | 0.0114 | -- | -- | -- |
| May-19 | 0.0147 | 0.0113 | -- | -- | -- |
| Jun-19 | 0.0147 | 0.233 | -- | -- | -- |
| Jul-19 | 0.0144 | 0.0158 | -- | -- | -- |
| Aug-19 | 0.0156 | 0.0413 | -- | -- | -- |
| Sep-19 | 0.0150 | 0.0368 | 2.09 | 2.13 | 0.305 |
| Oct-19 | 0.0135 | 0.0120 | -- | -- | -- |
| Nov-19 | 0.0140 | 0.0101 | -- | -- | -- |
| Dec-19 | 0.0163 | 0.0407 | -- | -- | -- |
| Jan-20 | 0.0140 | 0.0158 | 2.45 | 2.47 | 0.300 |
| Feb-20 | 0.0125 | 0.0256 | -- | -- | -- |
| Mar-20 | 0.0144 | 0.0254 | -- | -- | -- |
| Apr-20 | 0.0174 | 0.0130 | -- | -- | -- |
| May-20 | 0.0154 | 0.0616 | -- | -- | -- |
| Jun-20 | 0.0169 | 0.0531 | -- | -- | -- |
| Jul-20 | 0.0147 | 0.0106 | -- | -- | -- |
| Aug-20 | 0.0149 | 0.0204 | -- | -- | -- |
| Sep-20 | 0.0151 | 0.460 | 0.848 | 1.31 | 0.303 |
| Oct-20 | 0.0147 | 0.113 | -- | -- | -- |
| Nov-20 | 0.0157 | 0.0366 | -- | -- | -- |
| Dec-20 | 0.0157 | 0.119 | -- | -- | -- |
| Jan-21 | 0.0179 | 0.0263 | 2.24 | 2.27 | 0.309 |
| Feb-21 | 0.0158 | 0.209 | -- | -- | -- |
| Mar-21 | 0.0149 | 0.0363 | -- | -- | -- |
| Apr-21 | 0.0141 | 0.0336 | -- | -- | -- |
| May-21 | 0.0133 | 0.154 | -- | -- | -- |
| Jun-21 | 0.0135 | 0.0763 | -- | -- | -- |
| Jul-21 | 0.0122 | 0.0132 | -- | -- | -- |
| Aug-21 | 0.0121 | 0.613 | -- | -- | -- |
| Sep-21 | 0.0125 | 0.431 | 0.545 | 0.977 | 0.232 |
| Oct-21 | 0.0143 | 1.62 | -- | -- | -- |
| Nov-21 | 0.0150 | 0.00954 | -- | -- | -- |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 0.0225 | 0.568 | -- | -- | -- |
| Jan-22 | 0.0141 | 0.258 | 0.415 | 0.836 | 0.122 |
| Feb-22 | 0.0128 | 0.0454 | -- | -- | -- |
| Mar-22 | 0.0118 | -- | -- | -- | -- |
| Apr-22 | 0.0128 | 0.0151 | -- | -- | -- |
| May-22 | 0.0130 | -- | -- | -- | -- |
| Jun-22 | 0.0136 | -- | -- | -- | -- |
| Jul-22 | 0.0123 | 0.0541 | 0.783 | 0.877 | 0.252 |
| Aug-22 | 0.0143 | -- | -- | -- | -- |
| Sep-22 | 0.0127 | -- | -- | -- | -- |
| Oct-22 | 0.0144 | 0.204 | -- | -- | -- |
| Nov-22 | 0.0126 | -- | -- | -- | -- |
| Dec-22 | 0.0168 | -- | -- | -- | -- |
| Jan-23 | 0.0218 | 0.0516 | 0.0143 | 0.0660 | 0.172 |
| Feb-23 | 0.0145 | 0.233 | -- | -- | -- |
| Mar-23 | 0.0196 | -- | -- | -- | -- |
| Apr-23 | 0.0123 | 0.0673 | -- | -- | -- |
| May-23 | 0.0131 | -- | -- | -- | -- |
| Jun-23 | 0.0119 | -- | -- | -- | -- |
| Jul-23 | 0.0127 | 0.0155 | 2.20 | 2.22 | 0.324 |
| Aug-23 | 0.0128 | -- | -- | -- | -- |
| Sep-23 | 0.0118 | -- | -- | -- | -- |
| Oct-23 | 0.0104 | 0.0284 |  |  |  |
| Nov-23 | 0.0122 |  |  |  |  |
| Dec-23 | 0.0138 |  |  |  |  |
| Jan-24 | 0.0167 | 0.268 |  |  |  |
| Feb-24 | 0.0168 | 0.0173 | 2.45 | 2.46 | 0.295 |
| Mar-24 | 0.0135 |  |  |  |  |
| Apr-24 | 0.0115 | 0.0254 |  |  |  |
| May-24 | 0.0131 |  |  |  |  |
| Jun-24 | 0.0117 |  |  |  |  |
| Jul-24 | 0.0100 | 0.0316 | 2.41 | 2.45 | 0.316 |
| Aug-24 | 0.0107 |  |  |  |  |
| Sep-24 | 0.0103 |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **0.0136** | **0.144** | **1.92** | **2.14** | **0.377** |
| **Dry Season**  **Trend \*\*** | **None** | **None** | **\*\*\*** | **\*\*\*** | **\*\*\*** |
| **Wet Season**  **Average** | **0.0151** | **0.193** | **1.51** | **1.81** | **0.251** |
| **Average Annual** | **0.0145** | **0.177** | **1.66** | **1.91** | **0.304** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

\*\*\* No statistical dry season trending analysis was performed on nutrient species (except ammonia) due to the limited number of samples required for minor dischargers.

**Table 18-1. Discharge: Petaluma Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 0 | 0 | 0 | 0 | 0 |
| Nov-12 | 6.95 | 6.98 | 4.47 | 11.4 | 101 |
| Dec-12 | 8.15 | 6.16 | 74.4 | 80.5 | 63.2 |
| Jan-13 | 7.96 | 7.23 | 79.7 | 87.0 | 45.1 |
| Feb-13 | 6.87 | 4.65 | 39.7 | 44.4 | 38.7 |
| Mar-13 | 9.24 | 10.5 | 63.5 | 74.0 | 49.1 |
| Apr-13 | 4.91 | 3.11 | 2.68 | 5.79 | 32.9 |
| May-13 | 0 | 0 | 0 | 0 | 0 |
| Jun-13 | 0 | 0 | 0 | 0 | 0 |
| Jul-13 | 0 | 0 | 0 | 0 | 0 |
| Aug-13 | 0 | 0 | 0 | 0 | 0 |
| Sep-13 | 0 | 0 | 0 | 0 | 0 |
| Oct-13 | 7.11 | 5.16 | 0.691 | 5.85 | 59.3 |
| Nov-13 | 5.01 | 3.42 | 0.760 | 4.18 | 29.4 |
| Dec-13 | 6.72 | 4.36 | 5.46 | 9.82 | 40.2 |
| Jan-14 | 7.01 | 7.37 | 10.0 | 17.4 | 40.2 |
| Feb-14 | 8.03 | 31.4 | 9.31 | 40.7 | 66.2 |
| Mar-14 | 8.98 | 30.8 | 17.1 | 47.9 | 79.7 |
| Apr-14 | 8.94 | 3.50 | 12.0 | 15.5 | 57.5 |
| May-14 | 0 | 0 | 0 | 0 | 0 |
| Jun-14 | 0 | 0 | 0 | 0 | 0 |
| Jul-14 | 0 | 0 | 0 | 0 | 0 |
| Aug-14 | 0 | 0 | 0 | 0 | 0 |
| Sep-14 | 0 | 0 | 0 | 0 | 0 |
| Oct-14 | 0 | 0 | 0 | 0 | 0 |
| Nov-14 | 6.70 | 5.20 | 3.18 | 8.37 | 63.5 |
| Dec-14 | 11.2 | 16.6 | 54.0 | 70.6 | 77.2 |
| Jan-15 | 7.27 | 5.51 | 117 | 123 | 66.1 |
| Feb-15 | 6.02 | 2.85 | 49.9 | 52.8 | 26.2 |
| Mar-15 | 4.10 | 0.870 | 17.2 | 18.1 | 31.6 |
| Apr-15 | 2.90 |  | 3.41 |  | 30.3 |
| May-15 | 0 | 0 | 0 | 0 | 0 |
| Jun-15 | 0 | 0 | 0 | 0 | 0 |
| Jul-15 | 0 | 0 | 0 | 0 | 0 |
| Aug-15 | 0 | 0 | 0 | 0 | 0 |
| Sep-15 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 1.54 | 3.31 | 0.234 | 3.54 | 10.3 |
| Nov-15 | 4.00 | 9.62 | 0.344 | 9.97 | 24.1 |
| Dec-15 | 6.37 | 37.0 | 11.3 | 48.3 | 33.3 |
| Jan-16 | 7.92 | 6.32 | 79.7 | 86.0 | 23.6 |
| Feb-16 | 4.07 | 2.56 | 25.6 | 28.2 | 15.5 |
| Mar-16 | 6.84 | 3.97 | 3.23 | 7.20 | 81.9 |
| Apr-16 | 3.24 | 2.33 | 1.20 | 3.54 | 40.5 |
| May-16 | 0 | 0 | 0 | 0 | 0 |
| Jun-16 | 0 | 0 | 0 | 0 | 0 |
| Jul-16 | 0 | 0 | 0 | 0 | 0 |
| Aug-16 | 0 | 0 | 0 | 0 | 0 |
| Sep-16 | 0 | 0 | 0 | 0 | 0 |
| Oct-16 | 6.31 | 2.35 | 0.406 | 2.76 | 12.1 |
| Nov-16 | 5.10 | 4.92 | 0.686 | 5.61 | 26.8 |
| Dec-16 | 5.77 | 2.26 | 13.2 | 15.5 | 19.4 |
| Jan-17 | 10.7 | 8.19 | 40.9 | 49.1 | 43.7 |
| Feb-17 | 12.5 | 6.73 | 76.9 | 83.6 | 101 |
| Mar-17 | 6.57 | 3.82 | 32.4 | 36.2 | 70.6 |
| Apr-17 | 8.58 | 2.51 | 0.841 | 3.35 | 23.4 |
| May-17 | 0 | 0 | 0 | 0 | 0 |
| Jun-17 | 0 | 0 | 0 | 0 | 0 |
| Jul-17 | 0 | 0 | 0 | 0 | 0 |
| Aug-17 | 0 | 0 | 0 | 0 | 0 |
| Sep-17 | 0 | 0 | 0 | 0 | 0 |
| Oct-17 | 4.70 | 6.05 | 1.39 | 7.44 | 30.3 |
| Nov-17 | 5.41 | 8.67 | 1.62 | 10.3 | 26.4 |
| Dec-17 | 3.15 | 3.33 | 3.48 | 6.81 | 11.3 |
| Jan-18 | 6.89 | 5.21 | 2.17 | 7.37 | 18.9 |
| Feb-18 | 3.57 | 3.51 | 6.62 | 10.1 | 10.7 |
| Mar-18 | 5.86 | 5.20 | 1.79 | 6.98 | 37.4 |
| Apr-18 | 8.58 | 5.82 | 3.63 | 9.45 | 58.2 |
| May-18 | 0 | 0 | 0 | 0 | 0 |
| Jun-18 | 0 | 0 | 0 | 0 | 0 |
| Jul-18 | 0 | 0 | 0 | 0 | 0 |
| Aug-18 | 0 | 0 | 0 | 0 | 0 |
| Sep-18 | 0 | 0 | 0 | 0 | 0 |
| Oct-18 | 2.71 | 3.36 | 1.36 | 4.72 | 17.8 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 5.23 | 16.6 | 1.12 | 17.7 | 36.2 |
| Dec-18 | 6.10 | 11.3 | 10.1 | 21.4 | 10.1 |
| Jan-19 | 8.34 | 10.0 | 27.7 | 37.7 | 23.7 |
| Feb-19 | 9.36 | 16.9 | 34.4 | 51.3 | 44.7 |
| Mar-19 | 10.5 | 21.0 | 74.1 | 95.0 | 61.7 |
| Apr-19 | 6.10 | 10.5 | 51.6 | 62.1 | 61.8 |
| May-19 | 0 | 0 | 0 | 0 | 0 |
| Jun-19 | 0 | 0 | 0 | 0 | 0 |
| Jul-19 | 0 | 0 | 0 | 0 | 0 |
| Aug-19 | 0 | 0 | 0 | 0 | 0 |
| Sep-19 | 0 | 0 | 0 | 0 | 0 |
| Oct-19 | 6.15 | 8.29 | 2.76 | 11.1 | 33.2 |
| Nov-19 | 1.78 | 2.26 | 0.466 | 2.72 | 5.56 |
| Dec-19 | 8.08 | 10.1 | 10.7 | 20.8 | 17.4 |
| Jan-20 | 6.46 | 4.67 | 19.1 | 23.8 | 13.1 |
| Feb-20 | 3.32 | 3.87 | 10.2 | 14.1 | 15.2 |
| Mar-20 | 2.57 | 1.77 | 0.438 | 2.21 | 17.7 |
| Apr-20 | 6.27 | 4.28 | 3.60 | 7.88 | 36.0 |
| May-20 | 0 | 0 | 0 | 0 | 0 |
| Jun-20 | 0 | 0 | 0 | 0 | 0 |
| Jul-20 | 0 | 0 | 0 | 0 | 0 |
| Aug-20 | 0 | 0 | 0 | 0 | 0 |
| Sep-20 | 0 | 0 | 0 | 0 | 0 |
| Oct-20 | 0 | 0 | 0 | 0 | 0 |
| Nov-20 | 2.85 | 4.69 | 0.791 | 5.49 | 9.14 |
| Dec-20 | 3.37 | 3.99 | 0.991 | 4.98 | 10.3 |
| Jan-21 | 4.32 | 7.75 | 7.53 | 15.3 | 11.7 |
| Feb-21 | 3.56 | 3.83 | 17.8 | 21.6 | 6.16 |
| Mar-21 | 3.02 | 2.54 | 8.23 | 10.8 | 5.57 |
| Apr-21 | 2.14 | 3.86 | 1.72 | 5.58 | 6.61 |
| May-21 | 0 | 0 | 0 | 0 | 0 |
| Jun-21 | 0 | 0 | 0 | 0 | 0 |
| Jul-21 | 0 | 0 | 0 | 0 | 0 |
| Aug-21 | 0 | 0 | 0 | 0 | 0 |
| Sep-21 | 0 | 0 | 0 | 0 | 0 |
| Oct-21 | 0 | 0 | 0 | 0 | 0 |
| Nov-21 | 6.84 | 20.3 | 2.63 | 22.9 | 24.5 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 6.77 | 16.3 | 5.65 | 21.9 | 21.7 |
| Jan-22 | 4.68 | 6.87 | 19.5 | 26.4 | 23.6 |
| Feb-22 | 2.53 | 3.67 | 3.28 | 6.95 | 16.4 |
| Mar-22 | 2.44 | 2.99 | 0.672 | 3.66 | 24.3 |
| Apr-22 | 3.78 | 2.97 | 0.804 | 3.77 | 37.2 |
| May-22 | 0 | 0 | 0 | 0 | 0 |
| Jun-22 | 0 | 0 | 0 | 0 | 0 |
| Jul-22 | 0 | 0 | 0 | 0 | 0 |
| Aug-22 | 0 | 0 | 0 | 0 | 0 |
| Sep-22 | 0 | 0 | 0 | 0 | 0 |
| Oct-22 | 0 | 0 | 0 | 0 | 0 |
| Nov-22 | 3.93 | 8.55 | 3.54 | 12.1 | 29.5 |
| Dec-22 | 5.48 | 5.10 | 10.2 | 15.3 | 37.3 |
| Jan-23 | 13.3 | 6.68 | 66.8 | 73.5 | 80.9 |
| Feb-23 | 3.39 | 3.62 | 13.6 | 17.2 | 21.7 |
| Mar-23 | 9.17 | 6.41 | 40.5 | 46.9 | 81.0 |
| Apr-23 | 7.88 | 8.20 | 17.8 | 26.0 | 85.4 |
| May-23 | 0 | 0 | 0 | 0 | 0 |
| Jun-23 | 0 | 0 | 0 | 0 | 0 |
| Jul-23 | 0 | 0 | 0 | 0 | 0 |
| Aug-23 | 0 | 0 | 0 | 0 | 0 |
| Sep-23 | 0 | 0 | 0 | 0 | 0 |
| Oct-23 | 3.74 | 5.27 | 0.542 | 5.81 | 33.1 |
| Nov-23 | 5.34 | 8.43 | 4.41 | 12.8 | 28.1 |
| Dec-23 | 6.67 | 2.54 | 12.1 | 14.7 | 21.8 |
| Jan-24 | 8.45 | 9.36 | 28.1 | 37.4 | 37.4 |
| Feb-24 | 11.5 | 8.83 | 15.7 | 24.6 | 53.7 |
| Mar-24 | 7.30 | 9.11 | 14.7 | 23.8 | 47.0 |
| Apr-24 | 5.26 | 8.51 | 4.39 | 12.9 | 60.4 |
| May-24 | 0 | 0 | 0 | 0 | 0 |
| Jun-24 | 0 | 0 | 0 | 0 | 0 |
| Jul-24 | 0 | 0 | 0 | 0 | 0 |
| Aug-24 | 0 | 0 | 0 | 0 | 0 |
| Sep-24 | 0 | 0 | 0 | 0 | 0 |
|  |  |  |  |  |  |
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|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **0** | **0** | **0** | **0** | **0** |
| **Dry Season**  **Trend\*\*** | **--\*\*** | **--\*\*** | **--\*\*** | **--\*\*** | **--\*\*** |
| **Wet Season**  **Average** | **5.74** | **7.04** | **16.9** | **24.1** | **34.8** |
| **Average Annual** | **3.35** | **4.09** | **9.88** | **14.0** | **20.3** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* No dry season trending analysis was performed on Petaluma as the facility does not discharge during dry season months.

**Table 19-1. Discharge: Pinole Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 2.85 | 226 | 54.0 | 280 | 35.6 |
| Nov-12 | 2.63 | 250 | 124 | 374 | 34.8 |
| Dec-12 | 2.73 | 86.2 | 100 | 186 | 16.5 |
| Jan-13 | 2.68 | 203 | 28.4 | 232 | 28.4 |
| Feb-13 | 2.50 | 113 | 123 | 236 | 23.6 |
| Mar-13 | 2.46 | 177 | 171 | 348 | 32.5 |
| Apr-13 | 2.45 | 139 | 102 | 241 | 31.5 |
| May-13 | 2.47 | 224 | 134 | 358 | 32.7 |
| Jun-13 | 2.48 | 234 | 146 | 381 | 43.1 |
| Jul-13 | 2.51 | 152 | 74.0 | 226 | 27.5 |
| Aug-13 | 2.52 | 210 | 84.8 | 294 | 31.4 |
| Sep-13 | 2.51 | 228 | 226 | 454 | 18.0 |
| Oct-13 | 2.43 | 230 | 79.9 | 310 | 17.5 |
| Nov-13 | 2.41 | 173 | 171 | 344 | 17.3 |
| Dec-13 | 2.58 | 198 | 46.8 | 245 | 15.6 |
| Jan-14 | 2.40 | 290 | 65.3 | 356 | 16.3 |
| Feb-14 | 4.46 | 125 | 40.5 | 165 | 11.6 |
| Mar-14 | 2.77 | 251 | 95.3 | 347 | 22.0 |
| Apr-14 | 2.56 | 139 | 123 | 262 | 16.5 |
| May-14 | 2.32 | 202 | 86.8 | 289 | 19.3 |
| Jun-14 | 2.32 | 149 | 158 | 307 | 20.2 |
| Jul-14 | 2.35 | 201 | \*\* | \*\* | \*\* |
| Aug-14 | 2.33 | 264 | \*\* | \*\* | \*\* |
| Sep-14 | 2.31 | 201 | 64.5 | 265 | 16.7 |
| Oct-14 | 2.27 | 218 | 70.4 | 288 | 13.4 |
| Nov-14 | 2.35 | 218 | 36.8 | 254 | 14.2 |
| Dec-14 | 3.91 | 302 | 7.06 | 309 | 10.6 |
| Jan-15 | 2.42 | 230 | 64.5 | 294 | 15.9 |
| Feb-15 | 2.72 | 154 | 86.2 | 240 | 5.28 |
| Mar-15 | 2.34 | 262 | 57.7 | 320 | 16.6 |
| Apr-15 | 2.25 | 270 | 22.1 | 292 | 18.0 |
| May-15 | 2.13 | 210 | 8.55 | 218 | 14.0 |
| Jun-15 | 2.10 | 294 | 22.5 | 317 | 19.4 |
| Jul-15 | 2.07 | 261 | 51.4 | 312 | 17.7 |
| Aug-15 | 2.09 | 237 | 35.2 | 272 | 16.0 |
| Sep-15 | 2.04 | 96.4 | 119 | 215 | 20.8 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 2.07 | 124 | 93.2 | 217 | 18.6 |
| Nov-15 | 2.12 | 246 | 25.4 | 271 | 19.0 |
| Dec-15 | 2.30 | 211 | 89.1 | 300 | 26.7 |
| Jan-16 | 3.06 | 203 | 141 | 344 | 12.3 |
| Feb-16 | 2.31 | 217 | 74.4 | 292 | 17.5 |
| Mar-16 | 3.55 | 121 | 141 | 262 | 7.84 |
| Apr-16 | 2.38 | 315 | 6.65 | 322 | 12.8 |
| May-16 | 2.26 | 385 | 4.56 | 389 | 19.7 |
| Jun-16 | 2.20 | 377 | 3.36 | 380 | 13.9 |
| Jul-16 | 2.17 | 313 | 16.1 | 329 | 15.3 |
| Aug-16 | 2.20 | 324 | 10.8 | 334 | 14.4 |
| Sep-16 | 2.15 | 260 | 11.0 | 271 | 18.1 |
| Oct-16 | 2.28 | 312 | 7.51 | 319 | 20.0 |
| Nov-16 | 2.31 | 166 | 67.1 | 233 | 26.9 |
| Dec-16 | 2.82 | 498 | 85.7 | 584 | 53.8 |
| Jan-17 | 4.89 | 295 | 180 | 475 | 20.9 |
| Feb-17 | 5.11 | 166 | 126 | 292 | 17.8 |
| Mar-17 | 3.31 | 330 | 117 | 447 | 29.3 |
| Apr-17 | 3.20 | 186 | 133 | 318 | 21.2 |
| May-17 | 2.46 | 193 | 41.4 | 235 | 17.5 |
| Jun-17 | 2.34 | 200 | 44.4 | 245 | 25.2 |
| Jul-17 | 2.27 | 128 | 68.5 | 197 | 24.8 |
| Aug-17 | 2.35 | 192 | 39.3 | 232 | 23.6 |
| Sep-17 | 2.35 | 239 | 27.4 | 266 | 14.2 |
| Oct-17 | 2.29 | 247 | 44.3 | 291 | 23.0 |
| Nov-17 | 2.56 | 221 | 55.8 | 277 | 33.6 |
| Dec-17 | 2.35 | 364 | 4.51 | 369 | 19.9 |
| Jan-18 | 2.81 | 340 | 23.6 | 364 | 35.0 |
| Feb-18 | 2.40 | 301 | 19.1 | 320 | 21.9 |
| Mar-18 | 3.34 | 242 | 49.4 | 291 | 18.7 |
| Apr-18 | 2.86 | 233 | 53.5 | 287 | 27.2 |
| May-18 | 2.45 | 297 | 25.0 | 322 | 31.5 |
| Jun-18 | 2.29 | 338 | 48.9 | 387 | 38.3 |
| Jul-18 | 2.23 | 230 | 76.4 | 306 | 40.2 |
| Aug-18 | 2.20 | 234 | 80.0 | 314 | 30.8 |
| Sep-18 | 2.19 | 232 | 48.7 | 280 | 30.3 |
| Oct-18 | 2.21 | 135 | 35.5 | 170 | 19.4 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 2.34 | 282 | 30.6 | 313 | 23.4 |
| Dec-18 | 2.41 | 176 | 31.9 | 208 | 36.1 |
| Jan-19 | 3.08 | 229 | 183 | 499 | 63.1 |
| Feb-19 | 4.54 | 151 | 129 | 280 | 32.4 |
| Mar-19 | 3.62 | 0.765 | 144 | 145 | 23.3 |
| Apr-19 | 2.60 | 107 | 145 | 252 | 36.8 |
| May-19 | 2.74 | 107 | 68.0 | 175 | 21.9 |
| Jun-19 | 2.62 | 111 | 131 | 243 | 44.5 |
| Jul-19 | 2.53 | 38.7 | 129 | 168 | 36.7 |
| Aug-19 | 2.52 | 33.5 | 154 | 187 | 37.1 |
| Sep-19 | 2.11 | 14.1 | 65.2 | 79.3 | 26.7 |
| Oct-19 | 2.12 | 62.2 | 76.3 | 138 | 30.7 |
| Nov-19 | 2.14 | 26.5 | 83.3 | 110 | 35.6 |
| Dec-19 | 2.58 | 22.6 | 52.8 | 75.5 | 20.1 |
| Jan-20 | 2.32 | 175 | 83.3 | 258 | 23.3 |
| Feb-20 | 2.20 | 191 | 76.5 | 268 | 37.5 |
| Mar-20 | 2.35 | 417 | 8.78 | 425 | 29.7 |
| Apr-20 | 2.43 | 289 | 1.09 | 291 | 24.4 |
| May-20 | 2.27 | 170 | 63.9 | 234 | 30.7 |
| Jun-20 | 2.26 | 202 | 71.2 | 274 | 8.09 |
| Jul-20 | 2.18 | 220 | 73.7 | 293 | 42.3 |
| Aug-20 | 2.21 | 185 | 80.6 | 266 | 38.7 |
| Sep-20 | 2.18 | 94.1 | 52.5 | 147 | 33.7 |
| Oct-20 | 2.10 | 62.1 | 59.6 | 122 | 35.6 |
| Nov-20 | 2.16 | 108 | 33.3 | 142 | 30.2 |
| Dec-20 | 2.24 | 111 | 102 | 213 | 17.9 |
| Jan-21 | 2.38 | 408 | 4.61 | 413 | 9.56 |
| Feb-21 | 2.39 | 337 | 10.0 | 347 | 17.3 |
| Mar-21 | 2.32 | 281 | 31.6 | 313 | 12.3 |
| Apr-21 | 2.25 | 263 | 55.8 | 319 | 34.3 |
| May-21 | 2.16 | 212 | 86.2 | 298 | 48.6 |
| Jun-21 | 2.11 | 213 | 66.3 | 279 | 44.2 |
| Jul-21 | 2.05 | 226 | 70.8 | 297 | 45.2 |
| Aug-21 | 2.11 | 173 | 80.5 | 254 | 25.1 |
| Sep-21 | 2.10 | 222 | 55.6 | 278 | 25.2 |
| Oct-21 | 2.73 | 184 | 88.1 | 272 | 28.2 |
| Nov-21 | 2.39 | 289 | 53.7 | 343 | 39.7 |

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| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 3.71 | 383 | 9.36 | 392 | 25.5 |
| Jan-22 | 2.91 | 417 | 1.19 | 418 | 24.8 |
| Feb-22 | 2.54 | 582 | 0.973 | 583 | 36.1 |
| Mar-22 | 3.95 | 674 | 2.40 | 677 | 71.9 |
| Apr-22 | 2.36 | 388 | 0.959 | 389 | 19.4 |
| May-22 | 2.47 | 443 | 1.36 | 445 | 51.6 |
| Jun-22 | 2.42 | 443 | 16.3 | 460 | 55.2 |
| Jul-22 | 2.43 | 320 | 31.1 | 351 | 22.2 |
| Aug-22 | 2.43 | 263 | 61.8 | 325 | 40.9 |
| Sep-22 | 2.45 | 188 | 75.9 | 264 | 41.1 |
| Oct-22 | 2.44 | 292 | 51.6 | 343 | 32.1 |
| Nov-22 | 2.44 | 208 | 81.4 | 289 | 22.6 |
| Dec-22 | 3.05 | 277 | 59.0 | 336 | 26.7 |
| Jan-23 | 5.23 | 507 | 19.9 | 526 | 61.5 |
| Feb-23 | 3.30 | 418 | 5.23 | 424 | 36.0 |
| Mar-23 | 5.46 | 538 | 15.4 | 553 | 58.7 |
| Apr-23 | 3.10 | 328 | 9.38 | 338 | 13.8 |
| May-23 | 2.61 | 493 | 11.5 | 504 | 21.0 |
| Jun-23 | 2.49 | 309 | 11.9 | 321 | 23.1 |
| Jul-23 | 2.44 | 340 | 50.6 | 391 | 41.8 |
| Aug-23 | 2.36 | 378 | 4.21 | 383 | 13.6 |
| Sep-23 | 2.38 | 104 | 45.9 | 150 | 33.4 |
| Oct-23 | 2.46 | 353 | 34.4 | 387 | 45.2 |
| Nov-23 | 2.50 | 295 | 46.3 | 341 | 58.1 |
| Dec-23 | 2.83 | 440 | 9.38 | 450 | 39.3 |
| Jan-24 | 3.27 | 507 | 9.80 | 516 | 44.1 |
| Feb-24 | 4.39 | 321 | 19.6 | 341 | 21.4 |
| Mar-24 | 3.56 | 596 | 27.3 | 623 | 40.9 |
| Apr-24 | 3.02 | 308 | 17.6 | 326 | 12.1 |
| May-24 | 2.76 | 335 | 21.2 | 356 | 25.7 |
| Jun-24 | 2.54 | 427 | 25.0 | 452 | 55.6 |
| Jul-24 | 2.51 | 234 | 92.8 | 327 | 43.9 |
| Aug-24 | 2.43 | 182 | 99.5 | 281 | 40.2 |
| Sep-24 | 2.45 | 231 | 107 | 338 | 43.6 |
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| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **2.33** | **234** | **63.1** | **297** | **29.6** |
| **Dry Season Trend \*\*\*** | **None** | **None** | **None** | **None** | **Up** |
| **Wet Season**  **Average** | **2.82** | **259** | **61.3** | **321** | **26.8** |
| **Average Annual** | **2.62** | **248** | **62.0** | **311** | **27.9** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* No samples taken this month.

\*\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 20-1. Discharge: Rodeo Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 0.580 | 6.14 | 23.0 | 29.2 | 10.7 |
| Nov-12 | 0.670 | 1.01 | 23.3 | 24.3 | 8.36 |
| Dec-12 | 1.17 | 0.885 | 61.9 | 62.8 | 10.2 |
| Jan-13 | 0.710 | 5.64 | 43.7 | 49.4 | 8.59 |
| Feb-13 | 0.610 | 12.7 | 40.1 | 52.8 | 8.76 |
| Mar-13 | 0.600 | 7.03 | 37.9 | 44.9 | 9.98 |
| Apr-13 | 0.600 | 4.31 | 36.7 | 41.0 | 8.85 |
| May-13 | 0.580 | 0.548 | 26.4 | 26.9 | 10.5 |
| Jun-13 | 0.570 | 0.733 | 25.9 | 26.7 | 8.19 |
| Jul-13 | 0.570 | 0.517 | 25.9 | 26.4 | 8.40 |
| Aug-13 | 0.560 | 0.614 | 19.1 | 19.7 | 1.84 |
| Sep-13 | 0.580 | 1.49 | 30.9 | 32.4 | 5.92 |
| Oct-13 | 0.580 | 7.21 | 24.3 | 31.6 | 4.81 |
| Nov-13 | 0.540 | 0.510 | 26.6 | 27.1 | 6.12 |
| Dec-13 | 0.560 | 17.6 | 15.9 | 33.4 | 9.53 |
| Jan-14 | 0.570 | 4.96 | 38.8 | 43.8 | 13.1 |
| Feb-14 | 0.700 | 6.65 | 23.1 | 29.7 | 7.14 |
| Mar-14 | 0.690 | 1.36 | 28.8 | 30.1 | 7.82 |
| Apr-14 | 0.720 | 4.08 | 27.3 | 31.4 | 8.98 |
| May-14 | 0.580 | 7.23 | 20.7 | 27.9 | 6.58 |
| Jun-14 | 0.550 | 4.37 | 24.7 | 29.1 | 5.20 |
| Jul-14 | 0.543 | 5.20 | 25.8 | 31.0 | 9.37 |
| Aug-14 | 0.535 | 0.846 | 25.6 | 26.4 | 7.28 |
| Sep-14 | 0.547 | 0.625 | 25.3 | 26.0 | 10.2 |
| Oct-14 | 0.555 | 6.13 | 22.9 | 29.0 | 7.97 |
| Nov-14 | 0.556 | 0.444 | 23.2 | 23.6 | 0.888 |
| Dec-14 | 1.22 | 7.68 | 92.8 | 100 | 13.0 |
| Jan-15 | 0.631 | 1.04 | 18.2 | 19.3 | 0.739 |
| Feb-15 | 0.741 | 4.08 | 24.5 | 28.6 | 6.12 |
| Mar-15 | 0.549 | 12.8 | 19.7 | 32.5 | 9.00 |
| Apr-15 | 0.525 | 2.29 | 29.1 | 31.4 | 11.4 |
| May-15 | 0.485 | 0.816 | 20.4 | 21.2 | 2.23 |
| Jun-15 | 0.495 | 6.00 | 25.4 | 31.4 | 14.0 |
| Jul-15 | 0.496 | 1.67 | 25.4 | 27.1 | 10.7 |
| Aug-15 | 0.485 | 0.712 | 24.9 | 25.6 | 9.25 |
| Sep-15 | 0.491 | 1.48 | 27.8 | 29.3 | 10.0 |

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| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 0.494 | 1.06 | 22.7 | 23.8 | 7.57 |
| Nov-15 | 0.519 | 1.31 | 26.5 | 27.8 | 8.14 |
| Dec-15 | 0.565 | 8.01 | 26.1 | 34.1 | 9.31 |
| Jan-16 | 0.815 | 7.11 | 31.3 | 38.4 | 11.1 |
| Feb-16 | 0.600 | 5.64 | 25.1 | 30.7 | 8.36 |
| Mar-16 | 1.01 | 32.5 | 12.2 | 44.7 | 7.26 |
| Apr-16 | 0.597 | 0.625 | 23.7 | 24.3 | 5.60 |
| May-16 | 0.536 | 0.475 | 28.9 | 29.4 | 6.41 |
| Jun-16 | 0.520 | 14.8 | 0.692 | 15.5 | 8.69 |
| Jul-16 | 0.514 | 0.869 | 27.7 | 28.5 | 11.5 |
| Aug-16 | 0.524 | 10.5 | 25.8 | 36.4 | 7.35 |
| Sep-16 | 0.520 | 0.527 | 30.7 | 31.3 | 9.22 |
| Oct-16 | 0.552 | 0.685 | 22.2 | 22.9 | 9.81 |
| Nov-16 | 0.568 | 29.2 | 17.9 | 47.2 | 5.65 |
| Dec-16 | 0.674 | 6.00 | 27.7 | 33.7 | 12.0 |
| Jan-17 | 1.59 | 19.1 | 83.6 | 103 | 14.1 |
| Feb-17 | 1.65 | 18.8 | 61.0 | 79.7 | 15.2 |
| Mar-17 | 0.950 | 3.04 | 35.9 | 39.0 | 9.12 |
| Apr-17 | 0.910 | 4.54 | 41.6 | 46.2 | 7.95 |
| May-17 | 0.634 | 7.19 | 30.2 | 37.4 | 3.71 |
| Jun-17 | 0.562 | 0.377 | 33.6 | 33.9 | 8.81 |
| Jul-17 | 0.539 | 0.675 | 32.7 | 33.4 | 8.18 |
| Aug-17 | 0.522 | --\*\*\* | 25.0 | --\*\*\* | 5.62 |
| Sep-17 | 0.504 | 12.7 | 10.3 | 23.0 | 4.84 |
| Oct-17 | 0.512 | 5.91 | 25.6 | 31.5 | 11.0 |
| Nov-17 | 0.569 | 2.72 | 25.2 | 28.0 | 9.90 |
| Dec-17 | 0.522 | 4.05 | 30.9 | 34.9 | 10.4 |
| Jan-18 | 0.668 | 2.60 | 31.2 | 33.8 | 7.80 |
| Feb-18 | 0.542 | 0.636 | 30.8 | 31.4 | 8.00 |
| Mar-18 | 0.874 | 23.4 | 30.4 | 53.8 | 2.73 |
| Apr-18 | 0.733 | 0.456 | 29.8 | 30.2 | 5.78 |
| May-18 | 0.549 | 3.16 | 27.7 | 30.8 | 8.30 |
| Jun-18 | 0.518 | 1.31 | 20.5 | 21.8 | 6.16 |
| Jul-18 | 0.518 | 0.702 | 32.1 | 32.8 | 9.43 |
| Aug-18 | 0.514 | 1.04 | 34.5 | 35.6 | 7.55 |
| Sep-18 | 0.530 | 0.0742 | 26.0 | 26.0 | 3.89 |
| Oct-18 | 0.530 | 0.501 | 30.8 | 31.3 | 8.67 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 0.539 | 9.81 | 23.6 | 33.4 | 9.45 |
| Dec-18 | 0.574 | 4.03 | 40.3 | 44.3 | 10.9 |
| Jan-19 | 0.833 | 9.57 | 36.2 | 45.8 | 10.1 |
| Feb-19 | 1.30 | 4.03 | 38.0 | 42.0 | 9.21 |
| Mar-19 | 0.983 | 0.770 | 35.8 | 36.5 | 6.60 |
| Apr-19 | 0.659 | 9.70 | 36.9 | 46.6 | 9.70 |
| May-19 | 0.633 | 11.4 | 40.2 | 51.6 | 12.3 |
| Jun-19 | 0.544 | 0.497 | 26.9 | 27.4 | 8.49 |
| Jul-19 | 0.527 | 4.45 | 38.2 | 42.6 | 11.7 |
| Aug-19 | 0.529 | 0.297 | 20.4 | 20.7 | 7.06 |
| Sep-19 | 0.517 | 2.37 | 34.5 | 36.9 | 9.06 |
| Oct-19 | 0.492 | 1.00 | 23.0 | 23.0 | 6.00 |
| Nov-19 | 0.506 | 1.00 | 20.0 | 22.0 | 7.00 |
| Dec-19 | 0.626 | 6.00 | 27.0 | 34.0 | 12.0 |
| Jan-20 | 0.585 | 1.00 | 26.0 | 27.0 | 8.00 |
| Feb-20 | 0.524 | 7.00 | 31.0 | 38.0 | 9.00 |
| Mar-20 | 0.575 | 6.00 | 29.0 | 35.0 | 8.00 |
| Apr-20 | 0.604 | 19.0 | 34.0 | 54.0 | 7.00 |
| May-20 | 0.541 | 67.0 | 2.00 | 69.0 | 13.0 |
| Jun-20 | 0.536 | 10.0 | 14.0 | 25.0 | 8.00 |
| Jul-20 | 0.541 | 18.0 | 17.0 | 34.0 | 2.00 |
| Aug-20 | 0.546 | 13.0 | 17.0 | 30.0 | 14.0 |
| Sep-20 | 0.534 | 73.0 | 1.00 | 73.0 | 16.0 |
| Oct-20 | 0.531 | 0.630 | 19.3 | 19.9 | 4.00 |
| Nov-20 | 0.537 | 2.29 | 25.0 | 27.1 | 11.0 |
| Dec-20 | 0.543 | 6.02 | 22.1 | 28.1 | 26.0 |
| Jan-21 | 0.569 | 11.0 | 15.0 | 26.0 | 9.00 |
| Feb-21 | 0.570 | 36.2 | 9.65 | 46.2 | 3.00 |
| Mar-21 | 0.570 | 7.62 | 24.1 | 32.1 | 12.0 |
| Apr-21 | 0.523 | 9.70 | 19.4 | 29.1 | 2.00 |
| May-21 | 0.514 | 0.417 | 20.9 | 20.9 | 4.00 |
| Jun-21 | 0.518 | 9.63 | 23.1 | 32.8 | 4.00 |
| Jul-21 | 0.460 | 9.84 | 19.7 | 30.3 | 6.00 |
| Aug-21 | 0.495 | 20.4 | 19.7 | 40.8 | 8.00 |
| Sep-21 | 0.491 | 27.8 | 17.8 | 46.4 | 1.00 |
| Oct-21 | 0.657 | 22.0 | 25.0 | 47.0 | 11.0 |
| Nov-21 | 0.547 | 47.0 | 14.0 | 61.0 | 1.00 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 1.01 | 28.0 | 20.0 | 48.0 | 13.0 |
| Jan-22 | 0.656 | 92.0 | 7.00 | 99.0 | 2.00 |
| Feb-22 | 0.541 | 65.0 | 7.00 | 72.0 | 1.00 |
| Mar-22 | 0.511 | 25.0 | 17.0 | 41.0 | 11.0 |
| Apr-22 | 0.509 | 14.0 | 31.0 | 46.0 | 12.0 |
| May-22 | 0.490 | 20.0 | 24.0 | 44.0 | 9.00 |
| Jun-22 | 0.482 | 11.0 | 21.0 | 31.0 | 1.00 |
| Jul-22 | 0.486 | 25.0 | 19.0 | 45.0 | 1.00 |
| Aug-22 | 0.488 | 18.0 | 17.0 | 35.0 | 6.00 |
| Sep-22 | 0.484 | 25.0 | 17.0 | 41.0 | 2.00 |
| Oct-22 | 0.458 | 9.00 | 27.0 | 37.0 | 14.0 |
| Nov-22 | 0.493 | 1.00 | 21.0 | 22.0 | 7.00 |
| Dec-22 | 0.624 | 16.0 | 27.0 | 43.0 | 10.0 |
| Jan-23 | 1.57 | 47.0 | 47.0 | 95.0 | 11.0 |
| Feb-23 | 0.767 | 62.0 | 11.0 | 73.0 | 1.00 |
| Mar-23 | 1.48 | 31.0 | 28.0 | 60.0 | 10.0 |
| Apr-23 | 0.775 | 60.0 | 18.0 | 79.0 | 10.0 |
| May-23 | 0.591 | 1.00 | 29.0 | 30.0 | 5.00 |
| Jun-23 | 0.555 | 26.0 | 28.0 | 54.0 | 8.00 |
| Jul-23 | 0.543 | 28.0 | 18.0 | 46.0 | 8.00 |
| Aug-23 | 0.530 | 49.0 | 10.0 | 59.0 | 2.00 |
| Sep-23 | 0.509 | 44.0 | 10.0 | 55.0 | 10.0 |
| Oct-23 | 0.518 | 17.2 | 15.2 | 32.4 | 9.65 |
| Nov-23 | 0.524 | 18.7 | 27.6 | 46.3 | 11.8 |
| Dec-23 | 0.605 | 21.7 | 25.6 | 47.2 | 8.27 |
| Jan-24 | 0.747 | 35.5 | --† | --† | 9.38 |
| Feb-24 | 1.21 | 41.3 | 45.0 | 86.4 | 10.6 |
| Mar-24 | 0.855 | 24.1 | 34.4 | 58.6 | 11.0 |
| Apr-24 | 0.716 | 1.92 | 74.8 | 76.7 | 15.0 |
| May-24 | 0.605 | 59.8 | 14.1 | 73.9 | 10.2 |
| Jun-24 | 0.547 | 2.54 | 29.7 | 32.2 | 8.27 |
| Jul-24 | 0.546 | 12.9 | 24.5 | 37.4 | 8.99 |
| Aug-24 | 0.532 | 14.8 | 17.5 | 32.3 | 7.29 |
| Sep-24 | 0.510 | 8.22 | 16.9 | 25.1 | 7.42 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **0.532** | **11.9** | **22.8** | **34.7** | **7.47** |
| **Dry Season**  **Trend \*\*** | **None** | **Up** | **Down** | **Up** | **None** |
| **Wet Season**  **Average** | **0.702** | **13.4** | **29.3** | **42.5** | **8.78** |
| **Average Annual** | **0.631** | **12.8** | **26.6** | **39.2** | **8.23** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

\*\*\* Missing data due to Caltest missing request for ammonia analysis. (See letter below).

† Missing data due to contract laboratory not analyzing the samples within the allowed hold time.

**Table 21-2. Discharge: San Jose Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 91.9 | 157 | 3,600 | 3,760 | 124 |
| Nov-12 | 96.0 | 433 | 4,390 | 4,830 | 190 |
| Dec-12 | 107 | 523 | 5,490 | 6,020 | 646 |
| Jan-13 | 101 | 211 | 6,060 | 6,270 | 930 |
| Feb-13 | 101 | 247 | 5,040 | 5,290 | 565 |
| Mar-13 | 97.3 | 332 | 5,560 | 5,890 | 605 |
| Apr-13 | 86.9 | 313 | 4,150 | 4,460 | 261 |
| May-13 | 87.2 | 446 | 4,240 | 4,690 | 143 |
| Jun-13 | 87.5 | 232 | 4,070 | 4,300 | 149 |
| Jul-13 | 78.3 | 148 | 3,730 | 3,870 | 134 |
| Aug-13 | 82.4 | 156 | 3,940 | 4,090 | 177 |
| Sep-13 | 82.6 | 161 | 3,970 | 4,140 | 323 |
| Oct-13 | 86.8 | 161 | 5,000 | 5,160 | 606 |
| Nov-13 | 90.4 | 211 | 4,190 | 4,410 | 254 |
| Dec-13 | 92.3 | 347 | 5,450 | 5,800 | 307 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Jan-14 | 89.9 | 370 | 4,580 | 4,950 | 152 |
| Feb-14 | 86.7 | 220 | 5,220 | 5,440 | 426 |
| Mar-14 | 91.5 | 162 | 4,960 | 5,120 | 101 |
| Apr-14 | 88.4 | 180 | 4,560 | 4,740 | 120 |
| May-14 | 77.6 | 153 | 4,000 | 4,150 | 361 |
| Jun-14 | 80.2 | 146 | 4,100 | 4,240 | 169 |
| Jul-14 | 74.9 | 160 | 4,740 | 4,900 | 244 |
| Aug-14 | 75.6 | 152 | 4,110 | 4,270 | 86.8 |
| Sep-14 | 77.5 | 181 | 3,930 | 4,110 | 118 |
| Oct-14 | 79.1 | 149 | 4,750 | 4,900 | 270 |
| Nov-14 | 84.9 | 166 | 5,110 | 5,270 | 475 |
| Dec-14 | 104 | 226 | 6,890 | 7,120 | 688 |
| Jan-15 | 89.0 | 184 | 5,710 | 5,890 | 171 |
| Feb-15 | 93.3 | 195 | 5,680 | 5,870 | 315 |
| Mar-15 | 85.5 | 178 | 5,250 | 5,430 | 141 |
| Apr-15 | 79.4 | 356 | 5,830 | 6,190 | 463 |
| May-15 | 78.7 | 227 | 5,310 | 5,530 | 385 |
| Jun-15 | 74.9 | 190 | 5,670 | 5,860 | 312 |
| Jul-15 | 68.6 | 175 | 3,580 | 3,760 | 246 |
| Aug-15 | 69.0 | 167 | 5,170 | 5,340 | 370 |
| Sep-15 | 69.2 | 151 | 5,770 | 5,920 | 608 |
| Oct-15 | 73.8 | 178 | 5,050 | 5,220 | 423 |
| Nov-15 | 82.1 | 177 | 4,850 | 5,030 | 518 |
| Dec-15 | 82.4 | 343 | 4,690 | 5,030 | 231 |
| Jan-16 | 89.8 | 710 | 5,720 | 6,430 | 160 |
| Feb-16 | 83.8 | 212 | 5,280 | 5,490 | 346 |
| Mar-16 | 93.8 | 190 | 5,420 | 5,610 | 483 |
| Apr-16 | 84.7 | 166 | 4,910 | 5,080 | 273 |
| May-16 | 80.1 | 170 | 4,300 | 4,470 | 287 |
| Jun-16 | 74.1 | 163 | 4,570 | 4,740 | 272 |
| Jul-16 | 70.3 | 161 | 4,110 | 4,270 | 265 |
| Aug-16 | 74.7 | 159 | 3,970 | 4,130 | 394 |
| Sep-16 | 74.1 | 156 | 4,290 | 4,450 | 766 |
| Oct-16 | 80.7 | 171 | 5,580 | 5,750 | 857 |
| Nov-16 | 84.6 | 169 | 5,400 | 5,570 | 287 |
| Dec-16 | 86.2 | 172 | 6,640 | 6,810 | 716 |
| Jan-17 | 109 | 196 | 7,510 | 7,710 | 502 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Feb-17 | 120 | 190 | 7,020 | 7,210 | 432 |
| Mar-17 | 105 | 157 | 7,080 | 7,240 | 327 |
| Apr-17 | 98.7 | 159 | 5,430 | 5,590 | 187 |
| May-17 | 85.7 | 198 | 4,550 | 4,750 | 89.9 |
| Jun-17 | 81.1 | 222 | 4,960 | 5,190 | 117 |
| Jul-17 | 75.5 | 168 | 4,360 | 4,520 | 114 |
| Aug-17 | 77.6 | 185 | 3,930 | 4,110 | 97.8 |
| Sep-17 | 80.5 | 214 | 4,870 | 5,080 | 137 |
| Oct-17 | 84.8 | 117 | 4,720 | 4,840 | 101 |
| Nov-17 | 91.1 | 138 | 5,440 | 5,580 | 201 |
| Dec-17 | 88.9 | 154 | 4,690 | 4,850 | 326 |
| Jan-18 | 96.2 | 327 | 5,680 | 6,010 | 144 |
| Feb-18 | 90.0 | 185 | 4,990 | 5,170 | 139 |
| Mar-18 | 98.0 | 269 | 4,950 | 5,220 | 260 |
| Apr-18 | 91.7 | 229 | 4,670 | 4,900 | 117 |
| May-18 | 88.2 | 177 | 4,810 | 4,990 | 182 |
| Jun-18 | 81.7 | 305 | 4,470 | 4,770 | 85.3 |
| Jul-18 | 77.4 | 189 | 3,720 | 3,910 | 75.8 |
| Aug-18 | 79.1 | 162 | 4,090 | 4,250 | 108 |
| Sep-18 | 82.9 | 220 | 4,380 | 4,600 | 114 |
| Oct-18 | 85.8 | 195 | 5,220 | 5,410 | 98.7 |
| Nov-18 | 87.2 | 171 | 5,960 | 6,130 | 480 |
| Dec-18 | 91.3 | 186 | 4,630 | 4,820 | 352 |
| Jan-19 | 100.0 | 265 | 6,240 | 6,500 | 372 |
| Feb-19 | 126 | 234 | 5,820 | 6,050 | 247 |
| Mar-19 | 117 | 255 | 6,750 | 7,000 | 317 |
| Apr-19 | 101 | 168 | 6,130 | 6,300 | 288 |
| May-19 | 94.0 | 244 | 5,460 | 5,710 | 148 |
| Jun-19 | 85.2 | 185 | 4,450 | 4,640 | 129 |
| Jul-19 | 79.2 | 267 | 4,630 | 4,900 | 162 |
| Aug-19 | 78.5 | 227 | 3,720 | 3,950 | 134 |
| Sep-19 | 80.4 | 186 | 4,420 | 4,610 | 185 |
| Oct-19 | 81.5 | 185 | 4,420 | 4,610 | 176 |
| Nov-19 | 85.4 | 186 | 4,920 | 5,110 | 118 |
| Dec-19 | 92.6 | 185 | 5,530 | 5,710 | 95.7 |
| Jan-20 | 93.0 | 436 | 4,970 | 5,410 | 199 |
| Feb-20 | 88.4 | 159 | 4,900 | 5,060 | 84.9 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Mar-20 | 92.5 | 171 | 5,230 | 5,400 | 179 |
| Apr-20 | 93.2 | 178 | 6,050 | 6,230 | 704 |
| May-20 | 83.1 | 171 | 5,120 | 5,290 | 176 |
| Jun-20 | 76.8 | 279 | 4,380 | 4,660 | 469 |
| Jul-20 | 74.1 | 121 | 3,470 | 3,590 | 158 |
| Aug-20 | 75.1 | 140 | 3,530 | 3,670 | 115 |
| Sep-20 | 77.2 | 150 | 3,650 | 3,800 | 164 |
| Oct-20 | 75.4 | 145 | 3,400 | 3,540 | 146 |
| Nov-20 | 81.0 | 129 | 3,900 | 4,030 | 256 |
| Dec-20 | 82.5 | 137 | 5,390 | 5,520 | 355 |
| Jan-21 | 86.7 | 155 | 5,200 | 5,360 | 209 |
| Feb-21 | 86.1 | 156 | 5,320 | 5,470 | 256 |
| Mar-21 | 83.5 | 174 | 3,830 | 4,000 | 97.8 |
| Apr-21 | 76.4 | 192 | 3,710 | 3,900 | 121 |
| May-21 | 74.0 | 152 | 4,040 | 4,190 | 78.1 |
| Jun-21 | 68.2 | 124 | 3,060 | 3,190 | 83.2 |
| Jul-21 | 63.2 | 89.4 | 3,150 | 3,240 | 97.8 |
| Aug-21 | 67.7 | 101 | 2,900 | 3,000 | 88.6 |
| Sep-21 | 68.3 | 112 | 3,400 | 3,510 | 155 |
| Oct-21 | 76.3 | 92.8 | 3,950 | 4,040 | 258 |
| Nov-21 | 79.1 | 131 | 4,330 | 4,460 | 260 |
| Dec-21 | 87.9 | 177 | 4,640 | 4,820 | 396 |
| Jan-22 | 84.9 | 299 | 4,340 | 4,640 | 132 |
| Feb-22 | 77.4 | 201 | 3,810 | 4,010 | 82.9 |
| Mar-22 | 75.7 | 97.0 | 3,290 | 3,390 | 164 |
| Apr-22 | 74.0 | 107 | 3,290 | 3,400 | 102 |
| May-22 | 70.3 | 154 | 2,970 | 3,120 | 54.8 |
| Jun-22 | 65.8 | 77.2 | 2,580 | 2,660 | 50.5 |
| Jul-22 | 67.6 | 79.0 | 2,670 | 2,740 | 79.3 |
| Aug-22 | 58.3 | 73.5 | 1,650 | 1,720 | 44.2 |
| Sep-22 | 59.8 | 88.5 | 2,330 | 2,410 | 47.0 |
| Oct-22 | 63.6 | 152 | 2,950 | 3,100 | 211 |
| Nov-22 | 70.0 | 103 | 2,850 | 2,960 | 154 |
| Dec-22 | 82.7 | 242 | 3,770 | 4,020 | 301 |
| Jan-23 | 121 | 191 | 4,490 | 4,680 | 113 |
| Feb-23 | 98.8 | 139 | 4,600 | 4,740 | 93.4 |
| Mar-23 | 118 | 257 | 4,510 | 4,760 | 150 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Apr-23 | 98.8 | 170 | 3,610 | 3,780 | 227 |
| May-23 | 91.9 | 172 | 3,740 | 3,910 | 181 |
| Jun-23 | 83.9 | 132 | 3,660 | 3,790 | 58.0 |
| Jul-23 | 68.4 | 107 | 2,570 | 2,680 | 38.7 |
| Aug-23 | 77.9 | 121 | 3,240 | 3,370 | 49.2 |
| Sep-23 | 80.1 | 124 | 3,440 | 3,560 | 68.3 |
| Oct-23 | 87.0 | 132 | 3,570 | 3,700 | 116 |
| Nov-23 | 89.8 | 144 | 4,410 | 4,550 | 245 |
| Dec-23 | 93.8 | 213 | 4,660 | 4,870 | 421 |
| Jan-24 | 102 | 173 | 5,180 | 5,350 | 279 |
| Feb-24 | 121 | 180 | 6,000 | 6,180 | 474 |
| Mar-24 | 115 | 153 | 5,080 | 5,240 | 405 |
| Apr-24 | 106 | 108 | 4,330 | 4,440 | 192 |
| May-24 | 99.8 | 138 | 4,730 | 4,860 | 263 |
| Jun-24 | 89.8 | 105 | 4,220 | 4,320 | 151 |
| Jul-24 | 84.2 | 108 | 3,820 | 3,930 | 189 |
| Aug-24 | 86.0 | 106 | 3,900 | 4,000 | 141 |
| Sep-24 | 85.4 | 89.6 | 4,370 | 4,460 | 253 |
|  |  |  |  |  |  |
| **Dry Season Average** | **77.7** | **165** | **4,020** | **4,180** | **182** |
| **Dry Season**  **Trend \*\*** | **None** | **Down** | **Down** | **Down** | **Down** |
| **Wet Season**  **Average** | **91.2** | **208** | **4,980** | **5,190** | **295** |
| **Average Annual** | **85.6** | **190** | **4,580** | **4,770** | **248** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 22-2. Discharge: San Mateo Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 9.37 | 1,130 | 126 | 1,260 | 121 |
| Nov-12 | 9.65 | 1,180 | 192 | 1,380 | 137 |
| Dec-12 | 17.0 | 1,160 | 371 | 1,530 | 134 |
| Jan-13 | 11.3 | 1,040 | 235 | 1,280 | 114 |
| Feb-13 | 10.5 | 1,110 | 362 | 1,470 | 132 |
| Mar-13 | 10.4 | 1,230 | 127 | 1,360 | 125 |
| Apr-13 | 10.6 | 1,320 | 104 | 1,420 | 138 |
| May-13 | 10.4 | 1,480 | 4.45 | 1,490 | 128 |
| Jun-13 | 10.1 | 1,660 | 6.85 | 1,660 | 127 |
| Jul-13 | 10.0 | 1,400 | 6.42 | 1,410 | 132 |
| Aug-13 | 10.0 | 1,590 | 5.84 | 1,600 | 129 |
| Sep-13 | 9.70 | 1,540 | 7.72 | 1,550 | 122 |
| Oct-13 | 9.40 | 1,310 | 14.1 | 1,330 | 100 |
| Nov-13 | 9.60 | 1,030 | 221 | 1,250 | 125 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-13 | 9.50 | 1,150 | 135 | 1,280 | 129 |
| Jan-14 | 9.20 | 1,240 | 115 | 1,360 | 135 |
| Feb-14 | 11.6 | 1,140 | 294 | 1,430 | 122 |
| Mar-14 | 10.8 | 1,070 | 263 | 1,340 | 134 |
| Apr-14 | 10.7 | 1,280 | 151 | 1,430 | 100 |
| May-14 | 9.80 | 1,600 | 5.87 | 1,610 | 168 |
| Jun-14 | 9.40 | 1,610 | 3.53 | 1,620 | 137 |
| Jul-14 | 9.05 | 1,360 | 12.1 | 1,370 | 124 |
| Aug-14 | 8.76 | 1,400 | 2.57 | 1,400 | 125 |
| Sep-14 | 8.89 | 1,440 | 4.97 | 1,450 | 130 |
| Oct-14 | 8.95 | 1,230 | 7.47 | 1,240 | 105 |
| Nov-14 | 9.07 | 1,290 | 50.8 | 1,340 | 115 |
| Dec-14 | 18.9 | 1,150 | 425 | 1,570 | 146 |
| Jan-15 | 12.0 | 800 | 233 | 1,030 | 105 |
| Feb-15 | 11.9 | 1,200 | 26.7 | 1,230 | 105 |
| Mar-15 | 9.93 | 1,430 | 3.91 | 1,430 | 125 |
| Apr-15 | 9.62 | 1,450 | 1.75 | 1,460 | 119 |
| May-15 | 9.30 | 1,560 | 1.95 | 1,570 | 137 |
| Jun-15 | 8.75 | 1,470 | 2.84 | 1,470 | 135 |
| Jul-15 | 8.28 | 1,160 | 71.4 | 1,230 | 119 |
| Aug-15 | 8.21 | 885 | 161 | 1,050 | 128 |
| Sep-15 | 8.07 | 927 | 153 | 1,080 | 126 |
| Oct-15 | 8.38 | 1,270 | 84.2 | 1,350 | 145 |
| Nov-15 | 8.80 | 963 | 173 | 1,140 | 142 |
| Dec-15 | 10.5 | 1,170 | 95.8 | 1,270 | 142 |
| Jan-16 | 13.7 | 1,430 | 217 | 1,650 | 153 |
| Feb-16 | 10.1 | 567 | 495 | 1,060 | 123 |
| Mar-16 | 16.2 | 775 | 430 | 1,200 | 140 |
| Apr-16 | 10.0 | 651 | 389 | 1,040 | 170 |
| May-16 | 9.51 | 1,170 | 134 | 1,300 | 146 |
| Jun-16 | 9.27 | 1,410 | 33.1 | 1,450 | 139 |
| Jul-16 | 9.01 | 1,400 | 44.4 | 1,450 | 146 |
| Aug-16 | 9.16 | 1,460 | 46.7 | 1,510 | 143 |
| Sep-16 | 8.96 | 1,010 | 136 | 1,140 | 111 |
| Oct-16 | 10.1 | 1,110 | 53.9 | 1,160 | 103 |
| Nov-16 | 9.67 | 1,140 | 51.6 | 1,190 | 108 |
| Dec-16 | 12.7 | 1,400 | 24.5 | 1,430 | 137 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Jan-17 | 20.5 | 1,410 | 124 | 1,530 | 118 |
| Feb-17 | 20.9 | 1,550 | 182 | 1,730 | 133 |
| Mar-17 | 13.6 | 1,370 | 162 | 1,530 | 137 |
| Apr-17 | 12.2 | 1,040 | 190 | 1,230 | 118 |
| May-17 | 10.2 | 1,280 | 90.0 | 1,370 | 129 |
| Jun-17 | 9.76 | 1,320 | 27.1 | 1,350 | 128 |
| Jul-17 | 9.38 | 1,180 | 63.4 | 1,240 | 134 |
| Aug-17 | 9.45 | 1,130 | 124 | 1,250 | 130 |
| Sep-17 | 9.34 | 1,030 | 166 | 1,200 | 126 |
| Oct-17 | 9.02 | 1,250 | 109 | 1,360 | 132 |
| Nov-17 | 10.3 | 778 | 621 | 1,400 | 168 |
| Dec-17 | 9.34 | 983 | 233 | 1,220 | 123 |
| Jan-18 | 12.8 | 1,520 | 67.5 | 1,580 | 147 |
| Feb-18 | 9.93 | 1,460 | 2.59 | 1,460 | 151 |
| Mar-18 | 13.2 | 1,420 | 3.92 | 1,420 | 93.4 |
| Apr-18 | 11.8 | 1,320 | 5.13 | 1,330 | 90.0 |
| May-18 | 10.4 | 1,250 | 132 | 1,390 | 113 |
| Jun-18 | 9.73 | 1,420 | 29.2 | 1,450 | 135 |
| Jul-18 | 9.46 | 1,490 | 47.2 | 1,540 | 137 |
| Aug-18 | 9.46 | 1,370 | 82.6 | 1,450 | 177 |
| Sep-18 | 9.40 | 1,560 | 15.5 | 1,580 | 134 |
| Oct-18 | 9.16 | 1,490 | 9.07 | 1,500 | 118 |
| Nov-18 | 10.2 | 1,310 | 2.58 | 1,310 | 105 |
| Dec-18 | 10.4 | 1,320 | 2.88 | 1,320 | 103 |
| Jan-19 | 13.0 | 1,900 | 54.5 | 1,950 | 170 |
| Feb-19 | 19.0 | 1,280 | 6.80 | 1,280 | 34.0 |
| Mar-19 | 16.0 | 1,610 | 49.0 | 1,660 | 97.3 |
| Apr-19 | 11.0 | 1,520 | 2.96 | 1,520 | 110 |
| May-19 | 11.6 | 1,700 | 3.84 | 1,700 | 132 |
| Jun-19 | 10.1 | 1,540 | 4.55 | 1,550 | 122 |
| Jul-19 | 9.44 | 1,490 | 6.55 | 1,490 | 123 |
| Aug-19 | 9.47 | 1,530 | 5.47 | 1,530 | 128 |
| Sep-19 | 9.24 | 1,520 | 3.76 | 1,530 | 129 |
| Oct-19 | 9.01 | 1,400 | 42.5 | 1,440 | 124 |
| Nov-19 | 9.20 | 1,220 | 158 | 1,370 | 137 |
| Dec-19 | 11.3 | 1,040 | 261 | 1,310 | 145 |
| Jan-20 | 10.7 | 1,320 | 147 | 1,470 | 141 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Feb-20 | 9.63 | 1,190 | 48.4 | 1,240 | 123 |
| Mar-20 | 10.6 | 1,240 | 135 | 1,370 | 143 |
| Apr-20 | 11.1 | 917 | 277 | 1,190 | 145 |
| May-20 | 10.1 | 1,290 | 19.2 | 1,300 | 114 |
| Jun-20 | 9.38 | 1,370 | 1.43 | 1,370 | 113 |
| Jul-20 | 9.16 | 1,090 | 160 | 1,250 | 108 |
| Aug-20 | 9.49 | 1,200 | 118 | 1,320 | 143 |
| Sep-20 | 9.53 | 1,270 | 85.6 | 1,360 | 129 |
| Oct-20 | 9.27 | 1,400 | 38.2 | 1,440 | 143 |
| Nov-20 | 9.23 | 1,590 | 36.9 | 1,620 | 154 |
| Dec-20 | 9.45 | 1,350 | 52.0 | 1,400 | 123 |
| Jan-21 | 10.3 | 1,720 | 1.49 | 1,720 | 145 |
| Feb-21 | 10.2 | 1,680 | 1.78 | 1,680 | 122 |
| Mar-21 | 10.3 | 1,100 | 50.2 | 1,150 | 97.1 |
| Apr-21 | 8.93 | 1,060 | 306 | 1,360 | 140 |
| May-21 | 8.82 | 1,220 | 87.9 | 1,310 | 131 |
| Jun-21 | 8.59 | 878 | 273 | 1,150 | 116 |
| Jul-21 | 8.26 | 1,230 | 63.8 | 1,300 | 115 |
| Aug-21 | 8.50 | 914 | 304 | 1,220 | 144 |
| Sep-21 | 8.44 | 906 | 247 | 1,150 | 133 |
| Oct-21 | 10.9 | 1,040 | 184 | 1,230 | 126 |
| Nov-21 | 9.49 | 797 | 458 | 1,250 | 141 |
| Dec-21 | 16.9 | 1,590 | 112 | 1,700 | 193 |
| Jan-22 | 10.9 | 1,010 | 325 | 1,340 | 133 |
| Feb-22 | 9.17 | 1,490 | 9.14 | 1,500 | 132 |
| ar-22 | 9.44 | 1,110 | 157 | 1,260 | 127 |
| Apr-22 | 9.80 | 1,610 | 12.7 | 1,630 | 182 |
| May-22 | 9.43 | 1,450 | 74.3 | 1,530 | 147 |
| Jun-22 | 8.84 | 1,190 | 95.2 | 1,280 | 149 |
| Jul-22 | 8.42 | 1,280 | 42.4 | 1,320 | 90.9 |
| Aug-22 | 8.33 | 1,340 | 39.9 | 1,380 | 113 |
| Sep-22 | 8.29 | 1,040 | 163 | 1,210 | 128 |
| Oct-22 | 8.33 | 1,290 | 94.2 | 1,390 | 147 |
| Nov-22 | 8.79 | 1,400 | 109 | 1,510 | 143 |
| Dec-22 | 12.8 | 769 | 445 | 1,210 | 114 |
| Jan-23 | 23.8 | 1,110 | 286 | 1,390 | 107 |
| Feb-23 | 13.0 | 851 | 392 | 1,240 | 132 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN \*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Mar-23 | 20.0 | 953 | 135 | 1,090 | 82.2 |
| Apr-23 | 11.3 | 786 | 469 | 1,260 | 133 |
| May-23 | 11.2 | 1,150 | 331 | 1,480 | 156 |
| Jun-23 | 10.00 | 1,280 | 139 | 1,420 | 136 |
| Jul-23 | 9.02 | 999 | 391 | 1,390 | 132 |
| Aug-23 | 8.80 | 1,330 | 264 | 1,600 | 166 |
| Sep-23 | 8.64 | 1,200 | 149 | 1,350 | 129 |
| Oct-23 | 9.03 | 1,280 | 69.6 | 1,350 | 131 |
| Nov-23 | 9.15 | 1,660 | 5.95 | 1,670 | 132 |
| Dec-23 | 10.8 | 1,880 | 11.9 | 1,890 | 185 |
| Jan-24 | 14.3 | 1,180 | 208 | 1,390 | 112 |
| Feb-24 | 16.3 | 302 | 718 | 1,020 | 105 |
| Mar-24 | 14.5 | 631 | 526 | 1,160 | 110 |
| Apr-24 | 11.9 | 557 | 362 | 919 | 81.9 |
| May-24 | 11.0 | 1,370 | 102 | 1,480 | 139 |
| Jun-24 | 9.64 | 1,360 | 77.0 | 1,440 | 129 |
| Jul-24 | 8.84 | 1,210 | 170 | 1,380 | 135 |
| Aug-24 | 9.25 | 1,380 | 69.8 | 1,450 | 126 |
| Sep-24 | 9.32 | 1,230 | 95.9 | 1,320 | 128 |
|  |  |  |  |  |  |
| **Dry Season Average** | **9.34** | **1,310** | **86.8** | **1,400** | **131** |
| **Dry Season**  **Trend \*\*** | **None** | **Down** | **Up** | **None** | **None** |
| **Wet Season**  **Average** | **11.6** | **1,210** | **166** | **1,370** | **127** |
| **Average Annual** | **10.6** | **1,250** | **133** | **1,380** | **129** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 23-1. Discharge: SASM Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 1.90 | 25.8 | 111 | 137 | 39.4 |
| Nov-12 | 2.04 | 49.3 | 158 | 208 | 38.5 |
| Dec-12 | 2.83 | 37.5 | 187 | 224 | 36.4 |
| Jan-13 | 2.78 | 74.6 | 205 | 280 | 39.9 |
| Feb-13 | 2.58 | 49.5 | 231 | 280 | 46.3 |
| Mar-13 | 2.38 | 60.0 | 216 | 276 | 51.4 |
| Apr-13 | 2.06 | 25.7 | 159 | 185 | 39.0 |
| May-13 | 1.93 | 29.1 | 170 | 199 | 34.9 |
| Jun-13 | 1.98 | 112 | 169 | 281 | 48.6 |
| Jul-13 | 1.90 | 79.0 | 119 | 198 | 41.7 |
| Aug-13 | 2.02 | 25.2 | 102 | 128 | 84.0 |
| Sep-13 | 1.94 | 26.4 | 120 | 147 | 42.5 |
| Oct-13 | 1.93 | 70.0 | 128 | 198 | 44.5 |
| Nov-13 | 1.94 | 80.7 | 130 | 211 | 45.5 |
| Dec-13 | 1.96 | 52.6 | 139 | 192 | 44.5 |
| Jan-14 | 1.99 | 63.0 | 149 | 212 | 45.0 |
| Feb-14 | 8.59 | 63.1 | 294 | 357 | 66.3 |
| Mar-14 | 4.46 | 38.8 | 262 | 301 | 47.2 |
| Apr-14 | 2.05 | 13.9 | 151 | 165 | 38.0 |
| May-14 | 1.98 | 29.2 | 138 | 167 | 42.0 |
| Jun-14 | 1.83 | 31.1 | 118 | 149 | 42.9 |
| Jul-14 | 1.82 | 34.0 | 132 | 166 | 46.3 |
| Aug-14 | 1.79 | 26.0 | 113 | 139 | 40.5 |
| Sep-14 | 1.94 | 43.0 | 146 | 189 | 44.6 |
| Oct-14 | 1.86 | 34.0 | 111 | 145 | 41.6 |
| Nov-14 | 2.46 | 45.0 | 111 | 156 | 38.1 |
| Dec-14 | 6.78 | 59.0 | 185 | 244 | 40.8 |
| Jan-15 | 2.03 | 77.0 | 175 | 252 | 40.0 |
| Feb-15 | 2.41 | 46.0 | 116 | 162 | 40.2 |
| Mar-15 | 1.94 | 54.0 | 142 | 196 | 44.8 |
| Apr-15 | 1.97 | 28.0 | 132 | 160 | 38.2 |
| May-15 | 1.80 | 46.0 | 112 | 158 | 41.2 |
| Jun-15 | 1.76 | 50.0 | 122 | 172 | 47.5 |
| Jul-15 | 1.69 | 12.3 | 136 | 149 | 38.8 |
| Aug-15 | 1.69 | 5.50 | 139 | 145 | 34.1 |
| Sep-15 | 1.79 | 11.6 | 123 | 134 | 40.9 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 1.74 | 15.4 | 102 | 118 | 43.5 |
| Nov-15 | 1.87 | 25.8 | 104 | 130 | 34.8 |
| Dec-15 | 3.26 | 40.8 | 98.6 | 139 | 41.5 |
| Jan-16 | 5.28 | 294 | 549 | 843 | 161 |
| Feb-16 | 2.39 | 31.5 | 214 | 245 | 34.9 |
| Mar-16 | 4.40 | 44.5 | 163 | 208 | 43.8 |
| Apr-16 | 2.06 | 45.7 | 135 | 181 | 45.0 |
| May-16 | 1.88 | 45.8 | 150 | 196 | 40.8 |
| Jun-16 | 1.80 | 95.5 | 154 | 250 | 47.7 |
| Jul-16 | 1.76 | 12.7 | 133 | 146 | 44.0 |
| Aug-16 | 1.73 | 46.6 | 120 | 167 | 38.6 |
| Sep-16 | 1.68 | 48.3 | 142 | 190 | 43.8 |
| Oct-16 | 2.02 | 15.1 | 113 | 128 | 37.1 |
| Nov-16 | 2.49 | 47.7 | 140 | 187 | 47.0 |
| Dec-16 | 3.86 | 67.3 | 114 | 182 | 44.4 |
| Jan-17 | 6.46 | 25.7 | 159 | 185 | 26.1 |
| Feb-17 | 6.38 | 28.5 | 166 | 195 | 33.3 |
| Mar-17 | 3.24 | 10.7 | 163 | 174 | 31.3 |
| Apr-17 | 2.88 | 15.4 | 137 | 152 | 36.8 |
| May-17 | 2.02 | 39.1 | 179 | 218 | 48.0 |
| Jun-17 | 1.87 | 18.0 | 139 | 157 | 40.9 |
| Jul-17 | 2.01 | 14.4 | 130 | 145 | 35.6 |
| Aug-17 | 2.02 | 18.0 | 111 | 129 | 36.7 |
| Sep-17 | 1.79 | 20.9 | 101 | 122 | 39.6 |
| Oct-17 | 1.82 | 46.2 | 127 | 174 | 38.9 |
| Nov-17 | 2.23 | 67.0 | 128 | 195 | 46.0 |
| Dec-17 | 1.91 | 46.5 | 126 | 172 | 40.2 |
| Jan-18 | 3.23 | 74.0 | 168 | 242 | 46.9 |
| Feb-18 | 1.98 | 45.7 | 105 | 151 | 42.7 |
| Mar-18 | 3.68 | 12.5 | 125 | 137 | 30.2 |
| Apr-18 | 3.29 | 12.0 | 144 | 156 | 36.7 |
| May-18 | 1.88 | 31.5 | 158 | 190 | 44.1 |
| Jun-18 | 1.82 | 72.9 | 132 | 205 | 43.7 |
| Jul-18 | 1.74 | 119 | 34.3 | 206 | 40.4 |
| Aug-18 | 1.75 | 133 | 42.9 | 210 | 36.8 |
| Sep-18 | 1.75 | 146 | 27.1 | 203 | 39.3 |
| Oct-18 | 1.85 | 86.3 | 119 | 237 | 57.3 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 2.71 | 25.6 | 96.6 | 122 | 22.3 |
| Dec-18 | 2.60 | 87.2 | 132 | 219 | 37.5 |
| Jan-19 | 3.88 | 78.2 | 129 | 207 | 29.1 |
| Feb-19 | 5.95 | 64.9 | 101 | 166 | 28.8 |
| Mar-19 | 4.15 | 191 | 196 | 387 | 65.4 |
| Apr-19 | 2.40 | 93.6 | 121 | 252 | 45.3 |
| May-19 | 2.41 | 262 | 3.29 | 269 | 39.2 |
| Jun-19 | 1.71 | 184 | 7.27 | 165 | 30.3 |
| Jul-19 | 1.45 | 103 | 39.2 | 159 | 28.9 |
| Aug-19 | 1.46 | 60.1 | 60.4 | 148 | 29.6 |
| Sep-19 | 1.47 | 49.9 | 108 | 195 | 36.3 |
| Oct-19 | 1.38 | 42.4 | 95.4 | 164 | 33.4 |
| Nov-19 | 1.55 | 70.0 | 115 | 209 | 34.0 |
| Dec-19 | 3.35 | 74.3 | 84.8 | 170 | 24.6 |
| Jan-20 | 2.92 | 140 | 71.9 | 187 | 30.2 |
| Feb-20 | 1.96 | 86.5 | 101 | 234 | 36.6 |
| Mar-20 | 2.22 | 72.9 | 91.0 | 196 | 40.6 |
| Apr-20 | 2.37 | 67.2 | 121 | 211 | 39.7 |
| May-20 | 2.07 | 82.7 | 142 | 268 | 44.9 |
| Jun-20 | 1.96 | 79.5 | 137 | 217 | 43.4 |
| Jul-20 | 1.97 | 69.4 | 153 | 248 | 43.1 |
| Aug-20 | 1.96 | 116 | 108 | 245 | 43.9 |
| Sep-20 | 1.94 | 125 | 158 | 286 | 39.9 |
| Oct-20 | 1.91 | 68.4 | 113 | 205 | 40.3 |
| Nov-20 | 2.06 | 104 | 41.4 | 172 | 38.5 |
| Dec-20 | 2.32 | 193 | 54.8 | 230 | 46.8 |
| Jan-21 | 2.71 | 102 | 67.4 | 193 | 41.2 |
| Feb-21 | 2.60 | 104 | 171 | 315 | 56.5 |
| Mar-21 | 2.39 | 81.9 | 180 | 274 | 45.4 |
| Apr-21 | 1.98 | 84.0 | 128 | 233 | 45.2 |
| May-21 | 1.97 | 76.6 | 117 | 212 | 47.5 |
| Jun-21 | 1.87 | 103 | 135 | 235 | 47.7 |
| Jul-21 | 1.73 | 60.3 | 180 | 232 | 39.3 |
| Aug-21 | 1.72 | 43.2 | 160 | 204 | 40.1 |
| Sep-21 | 1.70 | 82.1 | 138 | 223 | 42.6 |
| Oct-21 | 3.30 | 98.0 | 139 | 215 | 39.8 |
| Nov-21 | 2.98 | 74.0 | 154 | 223 | 44.7 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 5.09 | 90.4 | 121 | 211 | 38.4 |
| Jan-22 | 2.83 | 72.8 | 180 | 255 | 45.5 |
| Feb-22 | 1.88 | 78.8 | 78.3 | 178 | 44.8 |
| Mar-22 | 1.92 | 79.5 | 94.0 | 188 | 54.8 |
| Apr-22 | 2.16 | 79.9 | 145 | 225 | 43.6 |
| May-22 | 1.84 | 200 | 59.2 | 262 | 40.0 |
| Jun-22 | 1.87 | 158 | 39.1 | 221 | 30.6 |
| Jul-22 | 1.72 | 135 | 49.6 | 220 | 27.6 |
| Aug-22 | 1.79 | 188 | 47.7 | 261 | 40.1 |
| Sep-22 | 1.79 | 139 | 88.6 | 266 | 38.2 |
| Oct-22 | 1.78 | 40.3 | 227 | 263 | 42.1 |
| Nov-22 | 1.91 | 66.7 | 297 | 364 | 57.4 |
| Dec-22 | 3.93 | 51.2 | 263 | 338 | 42.4 |
| Jan-23 | 6.10 | 209 | 30.4 | 243 | 33.5 |
| Feb-23 | 3.17 | 330 | 16.3 | 264 | 35.1 |
| Mar-23 | 5.48 | 104 | 30.3 | 134 | 28.1 |
| Apr-23 | 2.30 | 126 | 24.6 | 222 | 32.9 |
| May-23 | 2.18 | 31.7 | 176 | 208 | 37.0 |
| Jun-23 | 1.95 | 39.4 | 227 | 266 | 40.1 |
| Jul-23 | 1.89 | 129 | 66.7 | 247 | 36.0 |
| Aug-23 | 1.87 | 77.9 | 149 | 226 | 38.2 |
| Sep-23 | 1.80 | 76.6 | 153 | 230 | 39.0 |
| Oct-23 | 1.86 | 93.7 | 115 | 237 | 35.2 |
| Nov-23 | 2.05 | 86.7 | 103 | 250 | 42.6 |
| Dec-23 | 3.22 | 53.9 | 137 | 191 | 34.2 |
| Jan-24 | 5.07 | 33.3 | 203 | 236 | 43.3 |
| Feb-24 | 4.62 | 133 | 55.2 | 188 | 30.7 |
| Mar-24 | 3.39 | 141 | 59.1 | 200 | 32.9 |
| Apr-24 | 2.36 | 25.3 | 199 | 224 | 38.0 |
| May-24 | 2.10 | 53.0 | 231 | 284 | 42.8 |
| Jun-24 | 1.86 | 111 | 118 | 229 | 37.4 |
| Jul-24 | 1.75 | 89.8 | 106 | 195 | 31.7 |
| Aug-24 | 1.78 | 66.2 | 146 | 219 | 37.8 |
| Sep-24 | 1.77 | 71.2 | 168 | 239 | 40.1 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **1.85** | **74.7** | **120** | **202** | **40.7** |
| **Dry Season**  **Trend \*\*** | **None** | **Up** | **None** | **Up** | **Down** |
| **Wet Season**  **Average** | **2.95** | **71.9** | **140** | **217** | **42.0** |
| **Average Annual** | **2.49** | **73.1** | **132** | **211** | **41.5** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 24-1. Discharge: SFO Airport Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 0.900 | 99.0 | 17.3 | 116 | 2.01 |
| Nov-12 | 1.10 | 154 | 28.7 | 183 | 8.73 |
| Dec-12 | 1.40 | 195 | 34.3 | 229 | 12.2 |
| Jan-13 | 1.20 | 202 | 20.4 | 223 | 37.6 |
| Feb-13 | 1.10 | 230 | 28.6 | 259 | 12.9 |
| Mar-13 | 1.20 | 435 | 20.2 | 456 | 8.16 |
| Apr-13 | 1.24 | 234 | 17.5 | 252 | 3.19 |
| May-13 | 1.17 | 248 | 30.1 | 278 | 37.6 |
| Jun-13 | 0.950 | 302 | 23.4 | 326 | 9.34 |
| Jul-13 | 0.870 | 228 | 22.0 | 250 | 26.0 |
| Aug-13 | 1.24 | 261 | 20.2 | 281 | 38.9 |
| Sep-13 | 1.13 | 129 | 19.9 | 149 | 13.2 |
| Oct-13 | 1.00 | 180 | 8.32 | 188 | 6.43 |
| Nov-13 | 1.12 | 202 | 12.9 | 215 | 11.9 |
| Dec-13 | 0.960 | 200 | 14.3 | 214 | 9.43 |
| Jan-14 | 1.17 | 276 | 4.16 | 281 | 40.7 |
| Feb-14 | 1.34 | 238 | 14.7 | 253 | 5.07 |
| Mar-14 | 1.22 | 156 | 9.78 | 166 | 4.61 |
| Apr-14 | 1.57 | 338 | 11.9 | 350 | 38.0 |
| May-14 | 1.26 | 220 | 15.5 | 236 | 9.05 |
| Jun-14 | 1.04 | 244 | 22.0 | 266 | 4.72 |
| Jul-14 | 1.08 | 352 | 40.3 | 393 | 7.74 |
| Aug-14 | 1.22 | 270 | 12.1 | 282 | 6.96 |
| Sep-14 | 1.06 | 228 | 19.3 | 247 | 16.3 |
| Oct-14 | 1.05 | 121 | 21.9 | 143 | 3.40 |
| Nov-14 | 1.09 | 67.0 | 22.3 | 89.3 | 1.60 |
| Dec-14 | 1.20 | 162 | 28.0 | 190 | 27.4 |
| Jan-15 | 1.01 | 141 | 20.1 | 161 | 11.4 |
| Feb-15 | 1.18 | 162 | 12.0 | 174 | 2.40 |
| Mar-15 | 0.906 | 116 | 10.8 | 127 | 13.1 |
| Apr-15 | 1.06 | 104 | 33.2 | 137 | 4.40 |
| May-15 | 1.01 | 121 | 9.52 | 131 | 4.50 |
| Jun-15 | 1.00 | 166 | 13.2 | 179 | 3.60 |
| Jul-15 | 0.930 | 207 | 10.5 | 217 | 3.45 |
| Aug-15 | 0.930 | 165 | 19.6 | 184 | 2.17 |
| Sep-15 | 0.868 | 49.3 | 63.4 | 113 | 30.2 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 0.841 | 194 | 7.19 | 201 | 15.7 |
| Nov-15 | 1.07 | 49.1 | 48.7 | 97.9 | 30.8 |
| Dec-15 | 1.19 | 77.0 | 17.5 | 94.5 | 2.51 |
| Jan-16 | 1.16 | 189 | 64.7 | 254 | 30.6 |
| Feb-16 | 1.18 | 45.4 | 14.0 | 59.4 | 9.08 |
| Mar-16 | 1.28 | 124 | 12.8 | 136 | 4.00 |
| Apr-16 | 1.22 | 53.4 | 17.1 | 70.5 | 2.96 |
| May-16 | 1.03 | 73.2 | 15.0 | 88.2 | 3.19 |
| Jun-16 | 0.913 | 178 | 11.0 | 189 | 3.14 |
| Jul-16 | 1.26 | 244 | 17.2 | 261 | 5.34 |
| Aug-16 | 1.18 | 253 | 7.79 | 261 | 4.72 |
| Sep-16 | 0.934 | 212 | 14.5 | 227 | 4.22 |
| Oct-16 | 1.18 | 75.7 | 12.7 | 88.4 | 6.88 |
| Nov-16 | 1.16 | 137 | 18.7 | 156 | 2.57 |
| Dec-16 | 1.30 | 141 | 11.1 | 152 | 5.09 |
| Jan-17 | 1.50 | 131 | 35.5 | 166 | 49.6 |
| Feb-17 | 1.51 | 128 | 20.7 | 149 | 8.49 |
| Mar-17 | 1.27 | 117 | 12.1 | 129 | 2.31 |
| Apr-17 | 1.32 | 132 | 20.8 | 153 | 11.2 |
| May-17 | 1.13 | 267 | 7.76 | 275 | 7.57 |
| Jun-17 | 1.18 | 332 | 17.0 | 349 | 16.8 |
| Jul-17 | 1.09 | 255 | 1.99 | 257 | 4.47 |
| Aug-17 | 1.15 | 434 | 2.30 | 437 | 37.6 |
| Sep-17 | 1.15 | 397 | 2.26 | 400 | 41.8 |
| Oct-17 | 1.15 | 268 | 4.41 | 273 | 29.8 |
| Nov-17 | 1.28 | 115 | 2.37 | 117 | 14.4 |
| Dec-17 | 0.995 | 227 | 21.6 | 249 | 35.6 |
| Jan-18 | 1.25 | 204 | 3.47 | 208 | 22.7 |
| Feb-18 | 1.12 | 137 | 3.82 | 141 | 7.72 |
| Mar-18 | 1.26 | 144 | 14.9 | 159 | 10.4 |
| Apr-18 | 1.18 | 39.2 | 33.7 | 72.9 | 51.9 |
| May-18 | 1.17 | 25.2 | 48.3 | 73.6 | 37.3 |
| Jun-18 | 1.20 | 24.8 | 48.1 | 72.9 | 48.1 |
| Jul-18 | 1.05 | 82.2 | 30.4 | 113 | 29.9 |
| Aug-18 | 1.14 | 48.8 | 29.9 | 78.8 | 60.9 |
| Sep-18 | 1.05 | 63.6 | 44.5 | 108 | 35.6 |
| Oct-18 | 0.972 | 109 | 17.0 | 126 | 19.9 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 1.18 | 62.7 | 24.4 | 87.1 | 22.2 |
| Dec-18 | 1.25 | 38.7 | 40.7 | 79.4 | 62.7 |
| Jan-19 | 1.32 | 1.13 | 24.1 | 25.2 | 65.4 |
| Feb-19 | 1.54 | 42.0 | 18.7 | 60.7 | 30.1 |
| Mar-19 | 1.37 | 0.866 | 33.6 | 34.4 | 27.6 |
| Apr-19 | 1.16 | 3.83 | 21.3 | 25.1 | 30.0 |
| May-19 | 1.41 | 346 | 6.74 | 353 | 10.4 |
| Jun-19 | 1.32 | 221 | 27.1 | 248 | 59.3 |
| Jul-19 | 1.11 | 141 | 30.7 | 172 | 41.2 |
| Aug-19 | 1.09 | 21.6 | 19.6 | 41.2 | 22.6 |
| Sep-19 | 0.910 | 1.18 | 31.5 | 32.7 | 34.9 |
| Oct-19 | 1.11 | 0.842 | 52.6 | 53.5 | 20.5 |
| Nov-19 | 1.33 | 0.878 | 12.1 | 13.0 | 40.6 |
| Dec-19 | 1.50 | 1.28 | 10.7 | 12.0 | 2.50 |
| Jan-20 | 1.38 | 1.15 | 27.0 | 28.2 | 16.1 |
| Feb-20 | 1.15 | 0.946 | 40.2 | 41.2 | 2.03 |
| Mar-20 | 0.855 | 20.0 | 21.8 | 41.8 | 87.1 |
| Apr-20 | 0.672 | 0.674 | 15.2 | 15.8 | 7.07 |
| May-20 | 0.514 | 0.431 | 19.8 | 20.3 | 12.5 |
| Jun-20 | 0.728 | 0.553 | 17.1 | 17.7 | 8.84 |
| Jul-20 | 0.568 | 0.568 | 17.6 | 18.2 | 11.1 |
| Aug-20 | 0.813 | 17.0 | 8.61 | 25.6 | 2.95 |
| Sep-20 | 0.701 | 0.674 | 14.8 | 15.5 | 6.74 |
| Oct-20 | 0.645 | 0.530 | 9.27 | 9.80 | 13.8 |
| Nov-20 | 0.641 | 44.8 | 2.08 | 46.8 | 4.37 |
| Dec-20 | 0.806 | 66.9 | 0.956 | 67.9 | 9.56 |
| Jan-21 | 0.887 | 91.1 | 3.73 | 94.9 | 3.90 |
| Feb-21 | 0.915 | 8.22 | 2.81 | 11.0 | 4.81 |
| Mar-21 | 0.899 | 31.7 | 0.625 | 32.4 | 1.80 |
| Apr-21 | 0.745 | 54.3 | 2.64 | 57.0 | 3.41 |
| May-21 | 0.736 | 63.9 | 10.9 | 74.8 | 20.9 |
| Jun-21 | 0.671 | 23.5 | 15.2 | 38.8 | 1.60 |
| Jul-21 | 0.688 | 90.2 | 2.51 | 92.7 | 7.57 |
| Aug-21 | 0.655 | 81.4 | 3.97 | 85.4 | 11.0 |
| Sep-21 | 0.692 | 49.6 | 0.785 | 50.4 | 2.58 |
| Oct-21 | 0.870 | 36.8 | 2.86 | 39.6 | 6.60 |
| Nov-21 | 0.722 | 87.7 | 1.68 | 89.3 | 1.34 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 1.07 | 112 | 0.894 | 112 | 4.29 |
| Jan-22 | 0.838 | 47.1 | 5.81 | 52.9 | 12.6 |
| Feb-22 | 0.737 | 21.7 | 3.01 | 24.7 | 1.65 |
| Mar-22 | 0.852 | 18.7 | 1.93 | 20.7 | 2.07 |
| Apr-22 | 1.14 | 81.1 | 0.483 | 81.6 | 3.32 |
| May-22 | 0.906 | 92.4 | 2.12 | 94.6 | 2.37 |
| Jun-22 | 0.904 | 42.1 | 5.49 | 47.6 | 3.05 |
| Jul-22 | 0.996 | 199 | 2.63 | 202 | 3.97 |
| Aug-22 | 0.905 | 48.3 | 28.0 | 76.3 | 4.72 |
| Sep-22 | 0.864 | 29.9 | 2.08 | 32.0 | 6.06 |
| Oct-22 | 0.887 | 34.5 | 2.10 | 36.6 | 17.6 |
| Nov-22 | 0.933 | 5.62 | 3.67 | 9.29 | 3.30 |
| Dec-22 | 1.23 | 7.15 | 4.24 | 11.4 | 2.96 |
| Jan-23 | 1.38 | 162 | 0.118 | 162 | 5.68 |
| Feb-23 | 0.984 | 169 | 3.80 | 173 | 3.71 |
| Mar-23 | 1.22 | 259 | 3.67 | 262 | 3.97 |
| Apr-23 | 1.01 | 200 | 0.648 | 200 | 3.53 |
| May-23 | 0.966 | 226 | 2.59 | 228 | 4.05 |
| Jun-23 | 1.00 | 240 | 2.98 | 243 | 7.10 |
| Jul-23 | 0.986 | 174 | 3.28 | 177 | 5.11 |
| Aug-23 | 0.996 | 199 | 0.689 | 200 | 59.0 |
| Sep-23 | 1.00 | 212 | 0.824 | 213 | 17.4 |
| **Oct-23** | 1.05 | 57.1 | 7.47 | 64.6 | 46.4 |
| **Nov-23** | 1.04 | 89.2 | 32.1 | 121 | 15.0 |
| **Dec-23** | 1.10 | 7.61 | 10.1 | 17.8 | 17.8 |
| **Jan-24** | 1.03 | 14.4 | 8.04 | 22.5 | 26.0 |
| **Feb-24** | 1.30 | 22.5 | 4.32 | 26.9 | 2.37 |
| **Mar-24** | 1.17 | 13.9 | 2.71 | 16.7 | 12.3 |
| **Apr-24** | 1.18 | 76.3 | 3.68 | 80.0 | 6.40 |
| **May-24** | 1.12 | 64.0 | 3.68 | 67.6 | 19.4 |
| **Jun-24** | 0.990 | 86.7 | 3.50 | 90.2 | 4.39 |
| **Jul-24** | 1.02 | 75.7 | 5.38 | 81.1 | 36.2 |
| **Aug-24** | 1.10 | 19.0 | 2.93 | 21.9 | 11.0 |
| **Sep-24** | 1.23 | 7.73 | 7.31 | 15.0 | 11.5 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **1.000** | **148** | **15.7** | **163** | **16.7** |
| **Dry Season**  **Trend \*\*** | **Down** | **Down** | **Down** | **Down** | **None** |
| **Wet Season**  **Average** | **1.11** | **105** | **15.2** | **120** | **15.4** |
| **Average Annual** | **1.07** | **123** | **15.4** | **138** | **15.9** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 25-2. Discharge: SFPUC Southeast Monthly Flows and Loads1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 48.2 | 4,670 | 832 | 5,510 | 118 |
| Nov-12 | 53.8 | 7,010 | 570 | 7,580 | 131 |
| Dec-12 | 60.2 | 6,940 | 663 | 7,600 | 22.7 |
| Jan-13 | 61.1 | 7,070 | 65.0 | 7,130 | 69.9 |
| Feb-13 | 73.8 | 8,680 | 810 | 9,490 | 110 |
| Mar-13 | 63.8 | 7,050 | 506 | 7,560 | 134 |
| Apr-13 | 55.9 | 6,330 | 600 | 6,930 | 100 |
| May-13 | 52.3 | 7,500 | 813 | 8,310 | 19.8 |
| Jun-13 | 52.6 | 7,560 | 550 | 8,110 | 19.9 |
| Jul-13 | 54.3 | 8,530 | 451 | 8,980 | 39.9 |
| Aug-13 | 54.0 | 8,530 | 956 | 9,480 | 20.4 |
| Sep-13 | 53.4 | 7,450 | 920 | 8,370 | 20.2 |
| Oct-13 | 58.4 | 10,400 | 600 | 11,000 | 84.9 |
| Nov-13 | 59.1 | 10,100 | 194 | 10,300 | 32.2 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-13 | 57.1 | 9,930 | 804 | 10,700 | 61.1 |
| Jan-14 | 54.5 | 9,780 | 769 | 10,600 | 272 |
| Feb-14 | 83.2 | 9,040 | 895 | 9,940 | 289 |
| Mar-14 | 56.4 | 8,700 | 726 | 9,420 | 119 |
| Apr-14 | 58.2 | 9,130 | 1,650 | 10,800 | 192 |
| May-14 | 57.7 | 10,100 | 973 | 11,000 | 207 |
| Jun-14 | 56.9 | 10,100 | 452 | 10,500 | 274 |
| Jul-14 | 54.2 | 9,810 | 549 | 10,400 | 263 |
| Aug-14 | 55.2 | 8,010 | 1,230 | 9,240 | 109 |
| Sep-14 | 55.9 | 9,940 | 235 | 10,200 | 69.0 |
| Oct-14 | 57.3 | 9,110 | 528 | 9,640 | 70.0 |
| Nov-14 | 55.1 | 10,100 | 1,330 | 11,400 | 203 |
| Dec-14 | 64.1 | 6,370 | 544 | 6,920 | 53.0 |
| Jan-15 | 55.3 | 8,780 | 168 | 8,950 | 217 |
| Feb-15 | 55.8 | 7,490 | 997 | 8,490 | 148 |
| Mar-15 | 56.1 | 8,070 | 1,210 | 9,280 | 230 |
| Apr-15 | 55.8 | 8,980 | 1,300 | 10,300 | 231 |
| May-15 | 52.9 | 8,810 | 1,340 | 10,200 | 206 |
| Jun-15 | 53.7 | 10,400 | 1,050 | 11,400 | 266 |
| Jul-15 | 52.6 | 8,310 | 714 | 9,030 | 226 |
| Aug-15 | 53.9 | 9,000 | 1,520 | 10,500 | 239 |
| Sep-15 | 50.8 | 8,140 | 856 | 8,990 | 377 |
| Oct-15 | 51.4 | 7,690 | 668 | 8,360 | 234 |
| Nov-15 | 54.8 | 8,600 | 1,900 | 10,500 | 230 |
| Dec-15 | 56.9 | 6,340 | 591 | 6,930 | 384 |
| Jan-16 | 66.7 | 7,040 | 425 | 7,460 | 120 |
| Feb-16 | 57.0 | 7,540 | 427 | 7,970 | 122 |
| Mar-16 | 61.5 | 8,810 | 217 | 9,030 | 232 |
| Apr-16 | 58.3 | 8,310 | 643 | 8,950 | 315 |
| May-16 | 57.1 | 8,530 | 344 | 8,870 | 309 |
| Jun-16 | 55.0 | 9,070 | 856 | 9,930 | 295 |
| Jul-16 | 53.1 | 9,930 | 591 | 10,500 | 284 |
| Aug-16 | 54.6 | 10,900 | 388 | 11,300 | 450 |
| Sep-16 | 53.3 | 8,030 | 723 | 8,750 | 273 |
| Oct-16 | 66.1 | 9,440 | 777 | 10,200 | 204 |
| Nov-16 | 58.6 | 8,440 | 263 | 8,710 | 169 |
| Dec-16 | 58.9 | 7,950 | 287 | 8,240 | 246 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Jan-17 | 71.6 | 8,130 | 828 | 8,960 | 310 |
| Feb-17 | 79.6 | 9,740 | 686 | 10,400 | 377 |
| Mar-17 | 67.9 | 13,500 | 236 | 13,800 | 370 |
| Apr-17 | 67.5 | 9,520 | 458 | 9,980 | 328 |
| May-17 | 58.4 | 11,000 | 213 | 11,200 | 314 |
| Jun-17 | 57.7 | 12,300 | 253 | 12,600 | 619 |
| Jul-17 | 56.1 | 9,570 | 349 | 9,920 | 396 |
| Aug-17 | 55.3 | 9,630 | 524 | 10,200 | 338 |
| Sep-17 | 58.2 | 8,040 | 938 | 8,980 | 308 |
| Oct-17 | 58.6 | 8,670 | 680 | 9,350 | 221 |
| Nov-17 | 63.3 | 9,390 | 495 | 9,890 | 317 |
| Dec-17 | 56.1 | 8,600 | 641 | 9,240 | 498 |
| Jan-18 | 60.4 | 7,960 | 239 | 8,200 | 209 |
| Feb-18 | 53.8 | 8,120 | 211 | 8,330 | 239 |
| Mar-18 | 60.4 | 8,110 | 359 | 8,470 | 160 |
| Apr-18 | 60.6 | 7,380 | 284 | 7,660 | 200 |
| May-18 | 53.3 | 8,430 | 291 | 8,730 | 276 |
| Jun-18 | 53.3 | 8,240 | 235 | 8,470 | 327 |
| Jul-18 | 52.7 | 8,630 | 346 | 8,980 | 338 |
| Aug-18 | 52.7 | 8,440 | 607 | 9,040 | 321 |
| Sep-18 | 52.4 | 9,590 | 423 | 10,000 | 344 |
| Oct-18 | 53.0 | 8,610 | 419 | 9,030 | 333 |
| Nov-18 | 52.1 | 8,420 | 579 | 9,000 | 419 |
| Dec-18 | 59.5 | 10,600 | 317 | 10,900 | 308 |
| Jan-19 | 61.7 | 8,740 | 290 | 9,030 | 228 |
| Feb-19 | 64.5 | 8,440 | 636 | 9,080 | 386 |
| Mar-19 | 67.7 | 7,760 | 825 | 9,320 | 448 |
| Apr-19 | 59.1 | 8,150 | 388 | 8,540 | 382 |
| May-19 | 55.9 | 8,310 | 222 | 8,530 | 498 |
| Jun-19 | 49.3 | 7,560 | 357 | 7,970 | 510 |
| Jul-19 | 47.8 | 7,830 | 207 | 8,030 | 324 |
| Aug-19 | 47.3 | 8,480 | 167 | 8,650 | 366 |
| Sep-19 | 47.8 | 7,720 | 384 | 8,100 | 464 |
| Oct-19 | 47.5 | 8,230 | 160 | 8,390 | 348 |
| Nov-19 | 48.8 | 8,160 | 140 | 8,300 | 297 |
| Dec-19 | 56.3 | 6,910 | 159 | 7,070 | 239 |
| Jan-20 | 56.7 | 7,410 | 393 | 7,800 | 230 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Feb-20 | 48.0 | 7,800 | 211 | 7,670 | 219 |
| Mar-20 | 50.7 | 7,270 | 12.9 | 7,380 | 214 |
| Apr-20 | 43.3 | 5,890 | 138 | 6,030 | 367 |
| May-20 | 44.1 | 7,330 | 20.6 | 7,350 | 166 |
| Jun-20 | 42.3 | 6,950 | 171 | 7,120 | 253 |
| Jul-20 | 41.2 | 6,730 | 19.1 | 6,750 | 643 |
| Aug-20 | 41.3 | 6,760 | 28.9 | 6,790 | 163 |
| Sep-20 | 41.0 | 5,890 | 6.83 | 5,900 | 209 |
| Oct-20 | 40.9 | 6,870 | 100 | 6,970 | 177 |
| Nov-20 | 41.4 | 6,230 | 197 | 6,420 | 55.4 |
| Dec-20 | 42.8 | 5,940 | 201 | 5,960 | 111 |
| Jan-21 | 41.6 | 6,350 | 252 | 6,600 | 267 |
| Feb-21 | 46.3 | 4,090 | 223 | 4,310 | 139 |
| Mar-21 | 47.8 | 6,730 | 21.7 | 6,750 | 130 |
| Apr-21 | 43.3 | 6,770 | 10.3 | 6,780 | 130 |
| May-21 | 40.4 | 6,930 | 137 | 7,070 | 159 |
| Jun-21 | 40.5 | 7,340 | 49.2 | 7,390 | 117 |
| Jul-21 | 39.8 | 6,750 | 44.7 | 6,790 | 146 |
| Aug-21 | 40.6 | 6,200 | 58.0 | 6,260 | 193 |
| Sep-21 | 40.6 | 6,620 | 45.8 | 6,670 | 132 |
| Oct-21 | 44.3 | 6,240 | 97.6 | 6,110 | 132 |
| Nov-21 | 44.6 | 5,570 | 116 | 5,690 | 140 |
| Dec-21 | 52.1 | 6,670 | 149 | 6,820 | 169 |
| Jan-22 | 46.5 | 5,740 | 51.0 | 5,790 | 461 |
| Feb-22 | 42.8 | 6,440 | 47.4 | 6,480 | 236 |
| Mar-22 | 45.9 | 6,360 | 48.0 | 6,410 | 115 |
| Apr-22 | 44.0 | 8,080 | 117 | 8,190 | 226 |
| May-22 | 41.6 | 6,840 | 90.1 | 6,930 | 177 |
| Jun-22 | 43.4 | 7,200 | 49.0 | 7,250 | 428 |
| Jul-22 | 41.7 | 7,250 | 57.5 | 7,310 | 263 |
| Aug-22 | 42.1 | 7,770 | 117 | 7,890 | 266 |
| Sep-22 | 42.3 | 7,430 | 198 | 7,620 | 165 |
| Oct-22 | 43.3 | 7,140 | 209 | 7,350 | 142 |
| Nov-22 | 44.0 | 6,680 | 81.5 | 6,760 | 148 |
| Dec-22 | 50.4 | 5,420 | 140 | 5,560 | 117 |
| Jan-23 | 58.8 | 6,150 | 57.8 | 6,210 | 192 |
| Feb-23 | 49.1 | 6,920 | 55.9 | 6,970 | 147 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Mar-23 | 62.9 | 5,860 | 84.8 | 5,940 | 176 |
| Apr-23 | 48.8 | 3,760 | 252 | 4,020 | 255 |
| May-23 | 46.8 | 7,300 | 104 | 7,400 | 180 |
| Jun-23 | 44.2 | 6,690 | 140 | 6,830 | 193 |
| Jul-23 | 43.2 | 7,100 | 155 | 7,250 | 144 |
| Aug-23 | 43.9 | 7,200 | 268 | 7,460 | 560 |
| Sep-23 | 43.9 | 6,140 | 90.7 | 6,230 | 408 |
| Oct-23 | 43.4 | 6,660 | 155 | 6,820 | 449 |
| Nov-23 | 43.6 | 7,320 | 99.2 | 7,420 | 418 |
| Dec-23 | 48.2 | 6,130 | 159 | 6,290 | 200 |
| Jan-24 | 53.0 | 4,650 | 111 | 4,770 | 106 |
| Feb-24 | 58.7 | 6,370 | 107 | 6,480 | 294 |
| Mar-24 | 56.6 | 6,300 | 273 | 6,580 | 179 |
| Apr-24 | 48.0 | 6,280 | 26.4 | 6,300 | 137 |
| May-24 | 47.7 | 7,670 | 148 | 7,820 | 205 |
| Jun-24 | 45.0 | 7,470 | 86.9 | 7,560 | 198 |
| Jul-24 | 45.0 | 6,740 | 76.8 | 6,820 | 208 |
| Aug-24 | 45.2 | 7,310 | 73.8 | 7,390 | 477 |
| Sep-24 | 44.4 | 7,250 | 65.9 | 7,320 | 198 |
|  |  |  |  |  |  |
| **Dry Season Average** | **49.2** | **8,120** | **389** | **8,510** | **266** |
| **Dry Season**  **Trend \*\*** | **Down** | **Down** | **Down** | **Down** | **None** |
| **Wet Season**  **Average** | **55.2** | **7,610** | **419** | **8,030** | **217** |
| **Average Annual** | **52.7** | **7,820** | **406** | **8,230** | **237** |

1 For non-detects after October 1, 2023, 1/2 of the method detection limit was used to quantify values. Prior to October 1, 2023, non-detect values used the provided method detection limit.

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 26-1. Discharge: SMCSD Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 1.40 | 79.4 | 77.8 | 157 | 28.0 |
| Nov-12 | 1.63 | 49.3 | 122 | 172 | 27.7 |
| Dec-12 | 3.52 | 32.7 | 103 | 136 | 22.0 |
| Jan-13 | 2.82 | 117 | 21.5 | 139 | 33.0 |
| Feb-13 | -- | -- | -- | -- | -- |
| Mar-13 | 1.46 | 50.0 | 98.3 | 148 | 25.6 |
| Apr-13 | 1.36 | 37.1 | 87.4 | 124 | 20.6 |
| May-13 | 1.27 | 66.9 | 79.4 | 146 | 23.0 |
| Jun-13 | 1.21 | 64.1 | 80.1 | 144 | 24.7 |
| Jul-13 | 1.23 | 32.5 | 91.1 | 124 | 24.2 |
| Aug-13 | 1.19 | 54.0 | 85.0 | 139 | 27.4 |
| Sep-13 | 1.21 | 28.7 | 83.4 | 112 | 24.6 |
| Oct-13 | 1.36 | 36.5 | 98.2 | 135 | 26.2 |
| Nov-13 | 1.25 | 35.4 | 77.5 | 113 | 22.2 |
| Dec-13 | 1.03 | 36.6 | 60.0 | 96.6 | 17.1 |
| Jan-14 | 1.12 | 59.3 | 73.7 | 133 | 21.6 |
| Feb-14 | 1.82 | 35.3 | 95.4 | 131 | 20.7 |
| Mar-14 | 1.79 | 7.44 | 90.1 | 97.6 | 14.9 |
| Apr-14 | 1.28 | 38.2 | 57.4 | 95.7 | 0.0484 |
| May-14 | 1.08 | 85.7 | 62.9 | 149 | 20.8 |
| Jun-14 | 1.03 | 50.6 | 80.6 | 131 | 19.5 |
| Jul-14 | 1.06 | 30.5 | 66.0 | 96.5 | 18.0 |
| Aug-14 | 1.07 | 47.0 | 71.0 | 118 | 21.0 |
| Sep-14 | 1.08 | 37.1 | 81.9 | 119 | 20.5 |
| Oct-14 | 1.02 | 40.9 | 81.4 | 122 | 18.4 |
| Nov-14 | 1.08 | 26.6 | 80.8 | 107 | 18.6 |
| Dec-14 | 2.48 | 33.1 | 89.4 | 123 | 7.94 |
| Jan-15 | 1.16 | 60.5 | 55.0 | 115 | 18.5 |
| Feb-15 | 1.22 | 81.8 | 53.1 | 135 | 12.2 |
| Mar-15 | 1.02 | 72.6 | 42.5 | 115 | 18.6 |
| Apr-15 | 1.08 | 58.6 | 75.0 | 134 | 17.8 |
| May-15 | 1.07 | 44.2 | 93.5 | 138 | 17.3 |
| Jun-15 | 1.04 | 55.5 | 89.2 | 145 | 19.3 |
| Jul-15 | 0.996 | 46.5 | 90.4 | 137 | 21.7 |
| Aug-15 | 1.01 | 42.2 | 87.9 | 130 | 18.4 |
| Sep-15 | 1.05 | 40.5 | 83.7 | 124 | 15.7 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-15 | 1.06 | 45.5 | 67.3 | 113 | 16.4 |
| Nov-15 | 1.03 | 34.0 | 75.3 | 109 | 16.5 |
| Dec-15 | 1.32 | 24.8 | 79.7 | 105 | 16.5 |
| Jan-16 | 1.99 | 22.7 | 153 | 176 | 21.7 |
| Feb-16 | 1.27 | 19.9 | 106 | 126 | 6.40 |
| Mar-16 | 1.94 | 32.1 | 100 | 132 | 13.0 |
| Apr-16 | 1.16 | 60.9 | 61.6 | 123 | 21.1 |
| May-16 | 1.13 | 84.4 | 60.5 | 145 | 17.0 |
| Jun-16 | 1.08 | 52.7 | 90.7 | 143 | 19.2 |
| Jul-16 | 1.08 | 51.1 | 79.4 | 131 | 18.5 |
| Aug-16 | 1.14 | 64.8 | 83.1 | 148 | 18.3 |
| Sep-16 | 1.10 | 43.7 | 94.3 | 138 | 21.7 |
| Oct-16 | 1.15 | 47.6 | 78.4 | 126 | 17.8 |
| Nov-16 | 1.24 | 54.6 | 63.5 | 118 | 11.7 |
| Dec-16 | 1.71 | 48.9 | 101 | 150 | 10.8 |
| Jan-17 | 2.63 | 30.5 | 75.5 | 106 | 10.7 |
| Feb-17 | 2.73 | 26.5 | 90.5 | 117 | 24.3 |
| Mar-17 | 1.69 | 34.4 | 80.7 | 115 | 10.4 |
| Apr-17 | 1.45 | 115 | 46.3 | 161 | 16.9 |
| May-17 | 1.22 | 86.0 | 52.9 | 139 | 16.5 |
| Jun-17 | 1.21 | 79.3 | 86.1 | 165 | 18.4 |
| Jul-17 | 1.11 | 132 | 19.0 | 151 | 23.5 |
| Aug-17 | 1.09 | 119 | 28.0 | 147 | 19.5 |
| Sep-17 | 1.04 | 111 | 26.0 | 137 | 17.2 |
| Oct-17 | 0.979 | 115 | 21.5 | 137 | 18.9 |
| Nov-17 | 1.11 | 91.6 | 24.9 | 117 | 19.4 |
| Dec-17 | 0.951 | 69.7 | 51.1 | 121 | 18.9 |
| Jan-18 | 1.42 | 39.2 | 56.6 | 95.9 | 6.83 |
| Feb-18 | 0.986 | 25.7 | 82.7 | 108 | 18.5 |
| Mar-18 | 1.56 | 63.7 | 142 | 205 | 31.5 |
| Apr-18 | 1.55 | 74.2 | 42.0 | 116 | 20.4 |
| May-18 | 1.04 | 165 | 1.29 | 166 | 25.0 |
| Jun-18 | 1.03 | 146 | 0.669 | 146 | 23.6 |
| Jul-18 | 1.04 | 156 | 9.16 | 142 | 11.8 |
| Aug-18 | 0.965 | 111 | 13.5 | 160 | 20.0 |
| Sep-18 | 1.03 | 80.3 | 51.7 | 126 | 16.2 |
| Oct-18 | 1.03 | 41.1 | 85.3 | 135 | 19.9 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-18 | 1.25 | 30.8 | 83.9 | 113 | 16.6 |
| Dec-18 | 1.19 | 37.2 | 59.5 | 95.8 | 11.0 |
| Jan-19 | 1.60 | 24.5 | 71.2 | 94.9 | 9.66 |
| Feb-19 | 2.36 | 24.7 | 62.0 | 72.0 | 8.64 |
| Mar-19 | 1.72 | 29.1 | 132 | 181 | 13.7 |
| Apr-19 | 1.15 | 54.3 | 91.9 | 139 | 11.8 |
| May-19 | 1.20 | 170 | 11.0 | 172 | 16.1 |
| Jun-19 | 1.05 | 131 | 13.2 | 126 | 15.1 |
| Jul-19 | 1.01 | 82.1 | 60.6 | 154 | 18.5 |
| Aug-19 | 1.01 | 111 | 50.6 | 167 | 19.1 |
| Sep-19 | 0.997 | 138 | 27.0 | 159 | 17.2 |
| Oct-19 | 0.923 | 73.8 | 45.8 | 130 | 17.2 |
| Nov-19 | 0.973 | 40.2 | 72.3 | 118 | 15.8 |
| Dec-19 | 1.50 | 126 | 12.2 | 130 | 12.2 |
| Jan-20 | 1.28 | 46.4 | 63.7 | 109 | 11.2 |
| Feb-20 | 0.963 | 59.8 | 55.1 | 113 | 11.0 |
| Mar-20 | 1.03 | 89.4 | 46.3 | 125 | 13.5 |
| Apr-20 | 1.01 | 111 | 30.6 | 144 | 9.96 |
| May-20 | 0.945 | 49.5 | 72.3 | 125 | 15.5 |
| Jun-20 | 0.947 | 55.2 | 66.9 | 122 | 14.1 |
| Jul-20 | 0.947 | 86.0 | 40.9 | 126 | 14.0 |
| Aug-20 | 0.958 | 68.1 | 48.8 | 118 | 14.3 |
| Sep-20 | 0.921 | 72.6 | 51.2 | 122 | 11.7 |
| Oct-20 | 0.917 | 59.3 | 78.3 | 143 | 14.0 |
| Nov-20 | 0.945 | 74.5 | 46.9 | 121 | 15.4 |
| Dec-20 | 0.942 | 73.9 | 41.3 | 102 | 11.8 |
| Jan-21 | 1.07 | 75.0 | 39.3 | 112 | 10.5 |
| Feb-21 | 1.11 | 66.4 | 42.3 | 124 | 11.5 |
| Mar-21 | 1.38 | 104 | 65.9 | 178 | 16.7 |
| Apr-21 | 1.26 | 110 | 65.7 | 169 | 18.3 |
| May-21 | 1.21 | 101 | 67.6 | 171 | 18.5 |
| Jun-21 | 1.21 | 105 | 62.5 | 174 | 17.4 |
| Jul-21 | 1.23 | 38.5 | 107 | 156 | 20.1 |
| Aug-21 | 0.902 | 23.1 | 96.6 | 124 | 14.7 |
| Sep-21 | 0.855 | 77.8 | 42.3 | 120 | 15.9 |
| Oct-21 | 1.36 | 55.6 | 53.2 | 103 | 18.5 |
| Nov-21 | 1.22 | 28.8 | 72.5 | 114 | 22.3 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-21 | 1.97 | 61.6 | 47.9 | 118 | 17.3 |
| Jan-22 | 1.24 | 84.9 | 37.0 | 139 | 21.6 |
| Feb-22 | 0.933 | 110 | 23.7 | 134 | 19.5 |
| Mar-22 | 0.901 | 81.0 | 52.6 | 127 | 20.0 |
| Apr-22 | 0.962 | 43.4 | 74.9 | 112 | 18.6 |
| May-22 | 0.899 | 78.1 | 57.8 | 128 | 19.9 |
| Jun-22 | 0.903 | 91.3 | 42.2 | 137 | 21.1 |
| Jul-22 | 0.871 | 18.4 | 72.3 | 82.3 | 16.7 |
| Aug-22 | 0.879 | 36.8 | 65.3 | 98.0 | 20.6 |
| Sep-22 | 0.873 | 37.7 | 61.6 | 104 | 19.8 |
| Oct-22 | 0.850 | 35.6 | 66.2 | 116 | 20.8 |
| Nov-22 | 0.879 | 40.7 | 67.6 | 112 | 18.4 |
| Dec-22 | 1.45 | 33.5 | 66.5 | 97.1 | 16.6 |
| Jan-23 | 2.37 | 26.2 | 68.9 | 90.3 | 11.8 |
| Feb-23 | 1.15 | 53.0 | 56.8 | 113 | 17.0 |
| Mar-23 | 1.98 | 50.2 | 92.7 | 173 | 26.1 |
| Apr-23 | 1.07 | 46.0 | 75.6 | 123 | 18.3 |
| May-23 | 1.02 | 56.7 | 67.8 | 128 | 19.1 |
| Jun-23 | 0.954 | 43.7 | 77.8 | 124 | 21.6 |
| Jul-23 | 0.950 | 24.5 | 78.9 | 103 | 21.5 |
| Aug-23 | 0.949 | 28.2 | 78.9 | 115 | 22.2 |
| Sep-23 | 0.908 | 22.1 | 76.5 | 100 | 21.2 |
| Oct-23 | 0.898 | 50.4 | 64.7 | 124 | 20.4 |
| Nov-23 | 0.969 | 80.0 | 38.7 | 120 | 18.0 |
| Dec-23 | 1.32 | 48.3 | 65.4 | 112 | 16.9 |
| Jan-24 | 1.89 | 19.9 | 72.3 | 88.9 | 13.7 |
| Feb-24 | 1.95 | 51.1 | 76.4 | 98.1 | 17.8 |
| Mar-24 | 1.46 | 116 | 32.8 | 143 | 19.0 |
| Apr-24 | 1.11 | 92.8 | 32.2 | 126 | 18.0 |
| May-24 | 1.03 | 18.5 | 78.7 | 110 | 19.9 |
| Jun-24 | 0.973 | 10.2 | 83.6 | 93.7 | 22.5 |
| Jul-24 | 0.967 | 69.1 | 63.7 | 141 | 20.6 |
| Aug-24 | 0.932 | 46.7 | 65.9 | 113 | 18.8 |
| Sep-24 | 0.917 | 65.7 | 58.6 | 132 | 19.9 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| **Dry Season Average** | **1.04** | **69.4** | **62.8** | **133** | **19.2** |
| **Dry Season Trend \*\*,\*\*\*** | **Down** | **None** | **Down** | **Down** | **None** |
| **Wet Season**  **Average** | **1.37** | **55.1** | **67.5** | **123** | **16.8** |
| **Average Annual** | **1.23** | **61.1** | **65.5** | **127** | **17.8** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

\*\*\* The plant was under construction from June 2017 to June 2020 with upgrades to improve treatment capacity and performance. During a portion of this period, as required to complete improvements, the plant has been using one of two sedimentation tanks and fixed film reactors which has compromised the overall treatment performance. As a result, corresponding data from June 2017 to July 2018 was excluded from the statistical analysis as it is not reflective of plant treatment capacity and performance.

**Table 27-1. Discharge: Sonoma Valley Monthly Flows and Loads1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Average Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 0 | 0 | 0 | 0 | 0 |
| Nov-12 | 0 | 0 | 0 | 0 | 0 |
| Dec-12 | 7.80 | 6.19 | 88.5 | 94.7 | 38.3 |
| Jan-13 | 3.00 | 3.63 | 125 | 128 | 37.4 |
| Feb-13 | 2.88 | 4.25 | 3.67 | 7.92 | 41.4 |
| Mar-13 | 2.32 | 1.84 | 1.55 | 3.39 | 35.1 |
| Apr-13 | 3.09 | 2.45 | 117 | 119 | 45.6 |
| May-13 | 0 | 0 | 0 | 0 | 0 |
| Jun-13 | 0 | 0 | 0 | 0 | 0 |
| Jul-13 | 0 | 0 | 0 | 0 | 0 |
| Aug-13 | 0 | 0 | 0 | 0 | 0 |
| Sep-13 | 0 | 0 | 0 | 0 | 0 |
| Oct-13 | 0 | 0 | 0 | 0 | 0 |
| Nov-13 | 0 | 0 | 0 | 0 | 0 |
| Dec-13 | 0 | 0 | 0 | 0 | 0 |
| Jan-14 | 1.68 | 1.14 | 11.5 | 12.6 | 27.3 |
| Feb-14 | 11.1 | 26.4 | 11.9 | 38.3 | 58.7 |
| Mar-14 | 2.68 | 1.82 | 57.8 | 59.6 | 39.5 |
| Apr-14 | 0 | 0 | 0 | 0 | 0 |
| May-14 | 0 | 0 | 0 | 0 | 0 |
| Jun-14 | 0 | 0 | 0 | 0 | 0 |
| Jul-14 | 0 | 0 | 0 | 0 | 0 |
| Aug-14 | 0 | 0 | 0 | 0 | 0 |
| Sep-14 | 0 | 0 | 0 | 0 | 0 |
| Oct-14 | 0 | 0 | 0 | 0 | 0 |
| Nov-14 | 0 | 0 | 0 | 0 | 0 |
| Dec-14 | 3.80 | 2.14 | 278 | 280 | 34.0 |
| Jan-15 | 0 | 0 | 0 | 0 | 0 |
| Feb-15 | 0 | 0 | 0 | 0 | 0 |
| Mar-15 | 0 | 0 | 0 | 0 | 0 |
| Apr-15 | 0 | 0 | 0 | 0 | 0 |
| May-15 | 0 | 0 | 0 | 0 | 0 |
| Jun-15 | 0 | 0 | 0 | 0 | 0 |
| Jul-15 | 0 | 0 | 0 | 0 | 0 |
| Aug-15 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Average Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-15 | 0 | 0 | 0 | 0 | 0 |
| Oct-15 | 0 | 0 | 0 | 0 | 0 |
| Nov-15 | 0 | 0 | 0 | 0 | 0 |
| Dec-15 | 0 | 0 | 0 | 0 | 0 |
| Jan-16 | 2.67 | -- | -- | -- | -- |
| Feb-16 | 0.335 | 0.127 | 17.8 | 17.9 | 2.79 |
| Mar-16 | 3.80 | 1.44 | 108 | 109 | 27.3 |
| Apr-16 | 0 | 0 | 0 | 0 | 0 |
| May-16 | 0 | 0 | 0 | 0 | 0 |
| Jun-16 | 0 | 0 | 0 | 0 | 0 |
| Jul-16 | 0 | 0 | 0 | 0 | 0 |
| Aug-16 | 0 | 0 | 0 | 0 | 0 |
| Sep-16 | 0 | 0 | 0 | 0 | 0 |
| Oct-16 | 0 | 0 | 0 | 0 | 0 |
| Nov-16 | 0 | 0 | 0 | 0 | 0 |
| Dec-16 | 1.42 | 0.539 | 96.9 | 97.5 | 24.2 |
| Jan-17 | 7.78 | 2.94 | 500 | 503 | 100 |
| Feb-17 | 9.27 | 2.96 | 169 | 172 | 50.4 |
| Mar-17 | 4.29 | 1.54 | 8.48 | 10.0 | 38.6 |
| Apr-17 | 3.62 | 1.37 | 178 | 180 | 38.4 |
| May-17 | 0.275 | 0.0912 | 21.0 | 21.1 | 3.56 |
| Jun-17 | 0 | 0 | 0 | 0 | 0 |
| Jul-17 | 0 | 0 | 0 | 0 | 0 |
| Aug-17 | 0 | 0 | 0 | 0 | 0 |
| Sep-17 | 0 | 0 | 0 | 0 | 0 |
| Oct-17 | 0 | 0 | 0 | 0 | 0 |
| Nov-17 | 0 | 0 | 0 | 0 | 0 |
| Dec-17 | 0 | 0 | 0 | 0 | 0 |
| Jan-18 | 0 | 0 | 0 | 0 | 0 |
| Feb-18 | 0 | 0 | 0 | 0 | 0 |
| Mar-18 | 0 | 0 | 0 | 0 | 0 |
| Apr-18 | 0 | 0 | 0 | 0 | 0 |
| May-18 | 0 | 0 | 0 | 0 | 0 |
| Jun-18 | 0 | 0 | 0 | 0 | 0 |
| Jul-18 | 0 | 0 | 0 | 0 | 0 |
| Aug-18 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Average Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-18 | 0 | 0 | 0 | 0 | 0 |
| Oct-18 | 0 | 0 | 0 | 0 | 0 |
| Nov-18 | 0 | 0 | 0 | 0 | 0 |
| Dec-18 | 0 | 0 | 0 | 0 | 0 |
| Jan-19 | 5.55 | 0.458 | 41.7 | 42.1 | 8.70 |
| Feb-19 | 8.19 | 3.60 | 230 | 234 | 43.1 |
| Mar-19 | 4.03 | 0.881 | 82.0 | 82.9 | 12.3 |
| Apr-19 | 0 | 0 | 0 | 0 | 0 |
| May-19 | 0 | 0 | 0 | 0 | 0 |
| Jun-19 | 0 | 0 | 0 | 0 | 0 |
| Jul-19 | 0 | 0 | 0 | 0 | 0 |
| Aug-19 | 0 | 0 | 0 | 0 | 0 |
| Sep-19 | 0 | 0 | 0 | 0 | 0 |
| Oct-19 | 0 | 0 | 0 | 0 | 0 |
| Nov-19 | 0 | 0 | 0 | 0 | 0 |
| Dec-19 | 0 | 0 | 0 | 0 | 0 |
| Jan-20 | 0 | 0 | 0 | 0 | 0 |
| Feb-20 | 0 | 0 | 0 | 0 | 0 |
| Mar-20 | 0 | 0 | 0 | 0 | 0 |
| Apr-20 | 0 | 0 | 0 | 0 | 0 |
| May-20 | 0 | 0 | 0 | 0 | 0 |
| Jun-20 | 0 | 0 | 0 | 0 | 0 |
| Jul-20 | 0 | 0 | 0 | 0 | 0 |
| Aug-20 | 0 | 0 | 0 | 0 | 0 |
| Sep-20 | 0 | 0 | 0 | 0 | 0 |
| Oct-20 | 0 | 0 | 0 | 0 | 0 |
| Nov-20 | 0 | 0 | 0 | 0 | 0 |
| Dec-20 | 0 | 0 | 0 | 0 | 0 |
| Jan-21 | 0 | 0 | 0 | 0 | 0 |
| Feb-21 | 0 | 0 | 0 | 0 | 0 |
| Mar-21 | 0 | 0 | 0 | 0 | 0 |
| Apr-21 | 0 | 0 | 0 | 0 | 0 |
| May-21 | 0 | 0 | 0 | 0 | 0 |
| Jun-21 | 0 | 0 | 0 | 0 | 0 |
| Jul-21 | 0 | 0 | 0 | 0 | 0 |
| Aug-21 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Average Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-21 | 0 | 0 | 0 | 0 | 0 |
| Oct-21 | 0 | 0 | 0 | 0 | 0 |
| Nov-21 | 0 | 0 | 0 | 0 | 0 |
| Dec-21 | 1.73 | 0.582 | 0 | 0 | 0 |
| Jan-22 | 2.34 | 0.977 | 9.47 | 10.5 | 22.5 |
| Feb-22 | 0 | 0 | 0 | 0 | 0 |
| Mar-22 | 0 | 0 | 0 | 0 | 0 |
| Apr-22 | 0 | 0 | 0 | 0 | 0 |
| May-22 | 0 | 0 | 0 | 0 | 0 |
| Jun-22 | 0 | 0 | 0 | 0 | 0 |
| Jul-22 | 0 | 0 | 0 | 0 | 0 |
| Aug-22 | 0 | 0 | 0 | 0 | 0 |
| Sep-22 | 0 | 0 | 0 | 0 | 0 |
| Oct-22 | 0 | 0 | 0 | 0 | 0 |
| Nov-22 | 0 | 0 | 0 | 0 | 0 |
| Dec-22 | 0 | 0 | 0 | 0 | 0 |
| Jan-23 | 9.18 | 5.12 | 665 | 670 | 47.6 |
| Feb-23 | 3.68 | 1.36 | 102 | 103 | 27.2 |
| Mar-23 | 7.89 | 3.42 | 77.5 | 80.9 | 19.1 |
| Apr-23 | 0 | 0 | 0 | 0 | 0 |
| May-23 | 0.371 | 0.168 | 11.5 | 11.7 | 6.17 |
| Jun-23 | 0 | 0 | 0 | 0 | 0 |
| Jul-23 | 0 | 0 | 0 | 0 | 0 |
| Aug-23 | 0 | 0 | 0 | 0 | 0 |
| Sep-23 | 0 | 0 | 0 | 0 | 0 |
| Oct-23 | 0 | 0 | 0 | 0 | 0 |
| Nov-23 | 0 | 0 | 0 | 0 | 0 |
| Dec-23 | 0 | 0 | 0 | 0 | 0 |
| Jan-24 | 5.63 | 0.625 | 53.7 | 54.3 | 23.7 |
| Feb-24 | 7.90 | 3.85 | 116 | 118 | 29.2 |
| Mar-24 | 2.47 | 1.12 | 21.6 | 22.7 | 8.19 |
| Apr-24 | 0 | 0 | 0 | 0 | 0 |
| May-24 | 0 | 0 | 0 | 0 | 0 |
| Jun-24 | 0 | 0 | 0 | 0 | 0 |
| Jul-24 | 0 | 0 | 0 | 0 | 0 |
| Aug-24 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Average Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-24 | 0 | 0 | 0 | 0 | 0 |
|  |  |  |  |  |  |
| **Dry Season Average** | **0.0108** | **0.00433** | **0.541** | **0.546** | **0.162** |
| **Dry Season**  **Trend \*\*** | **--\*\*** | **--\*\*** | **--\*\*** | **--\*\*** | **--\*\*** |
| **Wet Season**  **Average** | **1.55** | **0.986** | **37.8** | **38.7** | **10.5** |
| **Average Annual** | **0.908** | **0.577** | **22.3** | **22.8** | **6.18** |

1 For non-detects after October 1, 2023, 1/2 of the method detection limit was used to quantify values. Prior to October 1, 2023, non-detect values used the provided method detection limit.

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* No dry season trending analysis was performed on Sonoma Valley as the facility has only discharged once during the dry season since sampling began in 2012.

**Table 28-2. Discharge: South SF-San Bruno Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 8.88 | 1,010 | 164 | 1,180 | 134 |
| Nov-12 | 8.30 | 870 | 151 | 1,020 | 121 |
| Dec-12 | 12.0 | 995 | 149 | 1,140 | 101 |
| Jan-13 | 9.24 | 658 | 284 | 942 | 114 |
| Feb-13 | 9.21 | 637 | 233 | 870 | 144 |
| Mar-13 | 9.08 | 793 | 527 | 1,320 | 147 |
| Apr-13 | 9.04 | 393 | 349 | 742 | 308 |
| May-13 | 8.28 | 766 | 139 | 905 | 162 |
| Jun-13 | 8.43 | 797 | 124 | 920 | 145 |
| Jul-13 | 8.51 | 820 | 99.6 | 919 | 167 |
| Aug-13 | 8.58 | 733 | 254 | 986 | 144 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-13 | 8.35 | 789 | 59.9 | 849 | 104 |
| Oct-13 | 8.11 | 736 | 127 | 862 | 118 |
| Nov-13 | 9.29 | 779 | 193 | 972 | 149 |
| Dec-13 | 7.65 | 523 | 191 | 714 | 130 |
| Jan-14 | 8.21 | 681 | 121 | 802 | 150 |
| Feb-14 | 11.3 | 1,210 | 42.7 | 1,250 | 206 |
| Mar-14 | 9.31 | 824 | 150 | 975 | 157 |
| Apr-14 | 8.56 | 1,050 | 29.4 | 1,080 | 160 |
| May-14 | 8.53 | 774 | 100 | 874 | 181 |
| Jun-14 | 8.55 | 889 | 77.4 | 966 | 194 |
| Jul-14 | 8.22 | 876 | 74.4 | 950 | 178 |
| Aug-14 | 8.13 | 844 | 122 | 966 | 151 |
| Sep-14 | 8.28 | 752 | 22.8 | 774 | 147 |
| Oct-14 | 8.22 | 960 | 39.2 | 999 | 197 |
| Nov-14 | 8.43 | 783 | 59.7 | 843 | 191 |
| Dec-14 | 13.3 | 1,040 | 87.7 | 1,120 | 119 |
| Jan-15 | 8.45 | 1,100 | 23.5 | 1,120 | 276 |
| Feb-15 | 9.11 | 1,040 | 36.8 | 1,080 | 162 |
| Mar-15 | 8.26 | 774 | 88.0 | 861 | 144 |
| Apr-15 | 8.09 | 794 | 68.5 | 863 | 152 |
| May-15 | 7.39 | 989 | 45.2 | 1,030 | 155 |
| Jun-15 | 7.52 | 669 | 127 | 796 | 162 |
| Jul-15 | 7.54 | 693 | 150 | 843 | 178 |
| Aug-15 | 7.41 | 680 | 161 | 842 | 138 |
| Sep-15 | 7.42 | 845 | 34.1 | 879 | 182 |
| Oct-15 | 7.52 | 1,050 | 10.9 | 1,060 | 169 |
| Nov-15 | 7.64 | 673 | 86.8 | 759 | 164 |
| Dec-15 | 8.83 | 657 | 137 | 794 | 138 |
| Jan-16 | 10.7 | 803 | 115 | 919 | 85.0 |
| Feb-16 | 8.35 | 661 | 258 | 919 | 159 |
| Mar-16 | 10.9 | 817 | 82.8 | 899 | 122 |
| Apr-16 | 8.02 | 714 | 125 | 839 | 152 |
| May-16 | 7.51 | 668 | 153 | 822 | 155 |
| Jun-16 | 7.44 | 665 | 438 | 1,100 | 158 |
| Jul-16 | 7.31 | 590 | 178 | 768 | 164 |
| Aug-16 | 7.42 | 791 | 149 | 940 | 140 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-16 | 7.35 | 868 | 73.0 | 940 | 191 |
| Oct-16 | 7.95 | 940 | 53.3 | 993 | 171 |
| Nov-16 | 8.01 | 951 | 34.1 | 986 | 140 |
| Dec-16 | 9.92 | 1,260 | 25.5 | 1,290 | 197 |
| Jan-17 | 14.2 | 1,420 | 44.9 | 1,470 | 70.8 |
| Feb-17 | 13.9 | 1,200 | 24.9 | 1,230 | 101 |
| Mar-17 | 9.73 | 1,140 | 11.9 | 1,150 | 58.9 |
| Apr-17 | 8.43 | 1,130 | 2.79 | 1,130 | 152 |
| May-17 | 7.22 | 990 | 108 | 1,100 | 181 |
| Jun-17 | 7.21 | 826 | 78.7 | 904 | 110 |
| Jul-17 | 7.12 | 904 | 44.6 | 949 | 134 |
| Aug-17 | 7.06 | 793 | 72.4 | 865 | 119 |
| Sep-17 | 7.02 | 748 | 28.4 | 776 | 154 |
| Oct-17 | 6.96 | 730 | 62.2 | 792 | 154 |
| Nov-17 | 7.68 | 1,080 | 10.9 | 1,090 | 205 |
| Dec-17 | 6.96 | 1,110 | 10.1 | 1,120 | 135 |
| Jan-18 | 8.64 | 1,260 | 48.2 | 1,310 | 125 |
| Feb-18 | 7.23 | 1,170 | 3.93 | 1,170 | 108 |
| Mar-18 | 8.81 | 1,140 | 23.5 | 1,170 | 172 |
| Apr-18 | 8.82 | 1,120 | 3.25 | 1,120 | 125 |
| May-18 | 7.39 | 1,060 | 17.7 | 1,080 | 138 |
| Jun-18 | 7.24 | 749 | 105 | 855 | 129 |
| Jul-18 | 7.15 | 901 | 51.9 | 1,000 | 122 |
| Aug-18 | 7.15 | 913 | 31.7 | 1,020 | 113 |
| Sep-18 | 7.12 | 783 | 39.0 | 1,020 | 134 |
| Oct-18 | 7.19 | 769 | 45.7 | 794 | 110 |
| Nov-18 | 7.92 | 1,070 | 30.6 | 1,370 | 135 |
| Dec-18 | 7.88 | 1,060 | 20.7 | 1,140 | 119 |
| Jan-19 | 9.84 | 1,260 | 20.0 | 1,270 | 116 |
| Feb-19 | 13.1 | 1,330 | 17.4 | 2,860 | 220 |
| Mar-19 | 11.0 | 1,200 | 18.0 | 1,920 | 153 |
| Apr-19 | 8.10 | 1,070 | 23.3 | 1,240 | 133 |
| May-19 | 8.17 | 795 | 66.4 | 987 | 116 |
| Jun-19 | 7.44 | 909 | 26.8 | 969 | 129 |
| Jul-19 | 7.27 | 873 | 61.1 | 1,080 | 126 |
| Aug-19 | 7.28 | 919 | 24.5 | 957 | 105 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-19 | 7.34 | 826 | 38.3 | 1,110 | 144 |
| Oct-19 | 7.17 | 832 | 57.7 | 1,050 | 159 |
| Nov-19 | 7.41 | 846 | 84.4 | 762 | 135 |
| Dec-19 | 8.81 | 1,050 | 63.9 | 1,350 | 245 |
| Jan-20 | 8.13 | 1,040 | 23.4 | 1,220 | 269 |
| Feb-20 | 7.23 | 1,120 | 11.8 | 1,320 | 142 |
| Mar-20 | 7.28 | 1,000 | 13.9 | 1,010 | 112 |
| Apr-20 | 7.26 | 957 | 77.0 | 1,000 | 79.3 |
| May-20 | 6.91 | 738 | 86.7 | 867 | 160 |
| Jun-20 | 6.94 | 730 | 104 | 1,100 | 173 |
| Jul-20 | 7.26 | 848 | 170 | 1,330 | 165 |
| Aug-20 | 6.75 | 1,070 | 26.2 | 1,360 | 150 |
| Sep-20 | 6.99 | 1,090 | 12.3 | 1,600 | 230 |
| Oct-20 | 6.80 | 1,120 | 8.23 | 1,060 | 70.9 |
| Nov-20 | 6.50 | 1,020 | 4.31 | 1,250 | 159 |
| Dec-20 | 6.64 | 1,060 | 14.7 | 1,000 | 169 |
| Jan-21 | 7.26 | 1,100 | 3.65 | 1,220 | 140 |
| Feb-21 | 7.28 | 1,120 | 3.49 | 852 | 90.9 |
| Mar-21 | 7.09 | 1,250 | 5.67 | 1,270 | 162 |
| Apr-21 | 6.76 | 1,310 | 11.5 | 1,210 | 159 |
| May-21 | 6.48 | 1,200 | 19.6 | 1,380 | 215 |
| Jun-21 | 6.64 | 1,040 | 18.9 | 1,310 | 228 |
| Jul-21 | 6.48 | 965 | 27.3 | 1,060 | 185 |
| Aug-21 | 6.39 | 1,050 | 21.9 | 1,320 | 159 |
| Sep-21 | 6.26 | 1,090 | 22.3 | 1,040 | 131 |
| Oct-21 | 8.57 | 1,030 | 27.9 | 1,030 | 187 |
| Nov-21 | 6.99 | 864 | 34.6 | 922 | 122 |
| Dec-21 | 12.1 | 1,200 | 76.1 | 1,100 | 139 |
| Jan-22 | 7.79 | 952 | 27.9 | 993 | 46.3 |
| Feb-22 | 6.73 | 614 | 70.0 | 733 | 78.1 |
| Mar-22 | 6.66 | 585 | 167 | 693 | 30.8 |
| Apr-22 | 7.25 | 796 | 38.0 | 792 | 21.8 |
| May-22 | 7.07 | 1,370 | 52.7 | 1,210 | 14.3 |
| Jun-22 | 7.12 | 1,140 | 30.7 | 1,350 | 17.2 |
| Jul-22 | 7.18 | 1,050 | 112 | 1,030 | 17.8 |
| Aug-22 | 7.30 | 1,260 | 29.1 | 1,140 | 20.4 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-22 | 7.19 | 1,350 | 2.78 | 1,380 | 31.4 |
| Oct-22 | 7.07 | 1,170 | 55.0 | 1,180 | 13.5 |
| Nov-22 | 7.42 | 1,490 | 6.34 | 1,360 | 9.85 |
| Dec-22 | 10.6 | 1,750 | 11.1 | 1,570 | 30.2 |
| Jan-23 | 13.8 | 1,370 | 18.9 | 2,000 | 217 |
| Feb-23 | 9.35 | 1,400 | 63.8 | 1,370 | 15.6 |
| Mar-23 | 12.4 | 1,370 | 4.11 | 1,070 | 49.6 |
| Apr-23 | 8.25 | 1,720 | 3.11 | 2,100 | 19.0 |
| May-23 | 7.96 | 1,540 | 5.98 | 1,700 | 22.6 |
| Jun-23 | 7.48 | 1,200 | 40.6 | 1,400 | 12.5 |
| Jul-23 | 7.43 | 895 | 97.7 | 1,010 | 6.90 |
| Aug-23 | 7.61 | 899 | 84.2 | 1,270 | 83.4 |
| Sep-23 | 7.38 | 653 | 147 | 769 | 12.3 |
| Oct-23 | 7.63 | 1,100 | 47.4 | 1,100 | 13.6 |
| Nov-23 | 7.85 | 959 | 57.2 | 1,130 | 10.8 |
| Dec-23 | 9.07 | 1,240 | 64.2 | 1,200 | 19.9 |
| Jan-24 | 10.7 | 1,570 | 51.9 | 1,390 | 31.9 |
| Feb-24 | 12.1 | 1,400 | 18.9 | 1,540 | 81.8 |
| Mar-24 | 10.1 | 1,580 | 16.1 | 1,640 | 55.4 |
| Apr-24 | 9.08 | 1,650 | 4.50 | 1,680 | 33.9 |
| May-24 | 8.65 | 1,110 | 128 | 1,350 | 10.8 |
| Jun-24 | 8.02 | 823 | 217 | 1,110 | 10.6 |
| Jul-24 | 8.18 | 891 | 92.9 | 1,020 | 120 |
| Aug-24 | 8.19 | 1,150 | 105 | 1,110 | 12.7 |
| Sep-24 | 8.23 | 977 |  |  |  |
|  |  |  |  |  |  |
| **Dry Season Average** | **7.49** | **910** | **85.3** | **1,050** | **124** |
| **Dry Season**  **Trend\*\*** | **Down** | **Up** | **None** | **Up** | **Down** |
| **Wet Season**  **Average** | **8.80** | **1,040** | **68.0** | **1,140** | **126** |
| **Average Annual** | **8.26** | **984** | **75.1** | **1,100** | **125** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 29-2. Discharge: Sunnyvale Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 12.6 | 714 | 795 | 1,510 | 343 |
| Nov-12 | 11.9 | 719 | 718 | 1,440 | 263 |
| Dec-12 | 12.6 | 724 | 600 | 1,320 | 226 |
| Jan-13 | 15.4 | 968 | 685 | 1,650 | 252 |
| Feb-13 | 10.1 | 336 | 720 | 1,060 | 155 |
| Mar-13 | 11.3 | 86.3 | 983 | 1,070 | 167 |
| Apr-13 | 10.6 | 28.8 | 844 | 872 | 94.3 |
| May-13 | 7.04 | 37.9 | 439 | 477 | 154 |
| Jun-13 | 9.25 | 5.51 | 477 | 482 | 220 |
| Jul-13 | 7.19 | 5.62 | 279 | 285 | 145 |
| Aug-13 | 9.23 | 8.30 | 212 | 220 | 198 |
| Sep-13 | 12.4 | 26.7 | 310 | 337 | 181 |
| Oct-13 | 12.6 | 58.5 | 404 | 463 | 228 |
| Nov-13 | 11.9 | 181 | 675 | 856 | 338 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-13 | 12.6 | 52.4 | 661 | 714 | 177 |
| Jan-14 | 15.4 | 121 | 971 | 1,090 | 244 |
| Feb-14 | 10.1 | 382 | 1,090 | 1,470 | 254 |
| Mar-14 | 11.3 | 64.7 | 843 | 908 | 162 |
| Apr-14 | 10.6 | 120 | 887 | 1,010 | 251 |
| May-14 | 7.04 | 5.24 | 498 | 503 | 185 |
| Jun-14 | 9.25 | 1.91 | 175 | 177 | 64.4 |
| Jul-14 | 6.12 | 16.2 | 228 | 244 | 149 |
| Aug-14 | 10.8 | 29.5 | 495 | 524 | 309 |
| Sep-14 | 8.81 | 6.36 | 399 | 405 | 206 |
| Oct-14 | 11.7 | 120 | 495 | 615 | 241 |
| Nov-14 | 9.40 | 186 | 512 | 698 | 260 |
| Dec-14 | 18.3 | 515 | 901 | 1,420 | 234 |
| Jan-15 | 13.2 | 319 | 948 | 1,270 | 214 |
| Feb-15 | 13.1 | 491 | 811 | 1,300 | 234 |
| Mar-15 | 8.52 | 173 | 544 | 717 | 187 |
| Apr-15 | 9.99 | 91.1 | 985 | 1,080 | 297 |
| May-15 | 8.99 | 19.9 | 465 | 485 | 184 |
| Jun-15 | 6.40 | 7.57 | 246 | 253 | 188 |
| Jul-15 | 6.33 | 25.5 | 201 | 227 | 152 |
| Aug-15 | 7.41 | 6.27 | 262 | 268 | 145 |
| Sep-15 | 9.43 | 3.37 | 386 | 390 | 217 |
| Oct-15 | 8.29 | 30.5 | 338 | 368 | 152 |
| Nov-15 | 12.4 | 21.0 | 627 | 648 | 241 |
| Dec-15 | 14.1 | 10.9 | 1,110 | 1,120 | 276 |
| Jan-16 | 12.0 | 45.8 | 737 | 783 | 188 |
| Feb-16 | 10.6 | 23.8 | 810 | 834 | 173 |
| Mar-16 | 12.5 | 51.5 | 756 | 808 | 200 |
| Apr-16 | 12.9 | 97.9 | 744 | 842 | 222 |
| May-16 | 8.08 | 9.09 | 488 | 497 | 155 |
| Jun-16 | 7.44 | 4.69 | 303 | 308 | 166 |
| Jul-16 | 8.45 | 28.3 | 296 | 324 | 192 |
| Aug-16 | 8.99 | 20.0 | 267 | 287 | 183 |
| Sep-16 | 7.22 | 16.0 | 273 | 289 | 165 |
| Oct-16 | 13.0 | 68.1 | 872 | 940 | 413 |
| Nov-16 | 9.51 | 13.2 | 631 | 644 | 233 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-16 | 12.5 | 434 | 1,400 | 1,840 | 380 |
| Jan-17 | 16.2 | 310 | 1,480 | 1,790 | 217 |
| Feb-17 | 16.0 | 29.0 | 1,180 | 1,210 | 205 |
| Mar-17 | 16.8 | 15.8 | 1,120 | 1,140 | 196 |
| Apr-17 | 11.7 | 36.4 | 685 | 721 | 163 |
| May-17 | 11.1 | 182 | 530 | 711 | 146 |
| Jun-17 | 8.91 | 22.4 | 421 | 444 | 181 |
| Jul-17 | 8.87 | 19.7 | 582 | 602 | 312 |
| Aug-17 | 9.33 | 69.8 | 651 | 721 | 359 |
| Sep-17 | 8.55 | 10.7 | 663 | 673 | 281 |
| Oct-17 | 12.2 | 524 | 928 | 1,450 | 451 |
| Nov-17 | 12.4 | 453 | 774 | 1,230 | 293 |
| Dec-17 | 9.15 | 404 | 652 | 1,060 | 166 |
| Jan-18 | 15.8 | 550 | 1,480 | 2,030 | 323 |
| Feb-18 | 9.43 | 61.5 | 885 | 946 | 144 |
| Mar-18 | 12.5 | 7.03 | 816 | 823 | 147 |
| Apr-18 | 11.8 | 4.99 | 1,030 | 1,030 | 233 |
| May-18 | 9.82 | 11.0 | 388 | 399 | 151 |
| Jun-18 | 7.57 | 13.2 | 372 | 385 | 194 |
| Jul-18 | 8.07 | 4.20 | 408 | 412 | 224 |
| Aug-18 | 8.42 | 7.67 | 417 | 425 | 199 |
| Sep-18 | 8.83 | 11.1 | 326 | 337 | 176 |
| Oct-18 | 9.12 | 52.2 | 559 | 611 | 217 |
| Nov-18 | 9.27 | 377 | 673 | 1,050 | 252 |
| Dec-18 | 13.2 | 574 | 1,120 | 1,700 | 303 |
| Jan-19 | 15.0 | 641 | 1,040 | 1,680 | 264 |
| Feb-19 | 19.2 | 509 | 1,160 | 1,660 | 172 |
| Mar-19 | 14.9 | 116 | 924 | 1,040 | 167 |
| Apr-19 | 12.8 | 62.1 | 685 | 747 | 155 |
| May-19 | 9.39 | 0 | 571 | 571 | 170 |
| Jun-19 | 10.1 | 0 | 804 | 804 | 356 |
| Jul-19 | 9.68 | 0 | 663 | 663 | 264 |
| Aug-19 | 8.03 | 14.9 | 541 | 556 | 228 |
| Sep-19 | 8.11 | 0 | 490 | 490 | 220 |
| Oct-19 | 8.19 | 55.6 | 678 | 733 | 224 |
| Nov-19 | 12.1 | 46.3 | 852 | 898 | 162 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-19 | 10.7 | 582 | 1,030 | 1,610 | 260 |
| Jan-20 | 13.9 | 348 | 1,460 | 1,810 | 320 |
| Feb-20 | 10.7 | 47.4 | 1,010 | 1,050 | 113 |
| Mar-20 | 13.7 | 278 | 944 | 1,220 | 218 |
| Apr-20 | 10.6 | 4.76 | 438 | 443 | 130 |
| May-20 | 8.81 | 6.90 | 338 | 345 | 151 |
| Jun-20 | 6.52 | 6.84 | 317 | 324 | 163 |
| Jul-20 | 6.34 | 2.93 | 252 | 255 | 112 |
| Aug-20 | 6.67 | 3.39 | 366 | 370 | 178 |
| Sep-20 | 13.6 | 6.86 | 653 | 660 | 340 |
| Oct-20 | 9.72 | 441 | 1,060 | 1,500 | 458 |
| Nov-20 | 14.1 | 747 | 1,090 | 1,840 | 400 |
| Dec-20 | 11.5 | 69.1 | 1,070 | 1,140 | 164 |
| Jan-21 | 12.2 | 128 | 1,170 | 1,290 | 240 |
| Feb-21 | 12.0 | 12.1 | 1,030 | 1,040 | 165 |
| Mar-21 | 11.4 | 131 | 978 | 1,110 | 250 |
| Apr-21 | 9.88 | 7.57 | 638 | 645 | 213 |
| May-21 | 11.6 | 4.40 | 629 | 633 | 241 |
| Jun-21 | 8.95 | 5.63 | 293 | 299 | 212 |
| Jul-21 | 6.01 | 20.7 | 401 | 422 | 179 |
| Aug-21 | 10.3 | 25.4 | 534 | 560 | 247 |
| Sep-21 | 11.0 | 6.17 | 310 | 316 | 196 |
| Oct-21 | 8.30 | 110 | 577 | 687 | 185 |
| Nov-21 | 9.60 | 115 | 674 | 789 | 210 |
| Dec-21 | 16.0 | 757 | 980 | 1,740 | 407 |
| Jan-22 | 15.1 | 771 | 1,180 | 1,950 | 303 |
| Feb-22 | 11.8 | 208 | 929 | 1,150 | 132 |
| Mar-22 | 8.35 | 46.4 | 798 | 845 | 110 |
| Apr-22 | 10.4 | 117 | 677 | 691 | 155 |
| May-22 | 13.3 | 20.3 | 610 | 633 | 227 |
| Jun-22 | 9.23 | 5.28 | 148 | 153 | 89.2 |
| Jul-22 | 7.32 | 12.1 | 453 | 465 | 148 |
| Aug-22 | 8.87 | 18.5 | 407 | 426 | 202 |
| Sep-22 | 9.05 | 27.4 | 598 | 625 | 245 |
| Oct-22 | 12.7 | 333 | 1,030 | 1,370 | 397 |
| Nov-22 | 12.9 | 368 | 728 | 1,100 | 219 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Dec-22 | 14.5 | 490 | 953 | 1,440 | 184 |
| Jan-23 | 22.4 | 657 | 1,230 | 1,890 | 156 |
| Feb-23 | 13.1 | 27.5 | 1,090 | 1,120 | 127 |
| Mar-23 | 18.0 | 237 | 1,300 | 1,540 | 121 |
| Apr-23 | 12.2 | 327 | 1,430 | 1,760 | 147 |
| May-23 | 9.64 | 8.89 | 791 | 800 | 65.7 |
| Jun-23 | 9.66 | 28.9 | 570 | 599 | 65.2 |
| Jul-23 | 9.56 | 7.66 | 368 | 376 | 233 |
| Aug-23 | 11.1 | 25.2 | 871 | 896 | 187 |
| Sep-23 | 8.91 | 46.2 | 881 | 927 | 84.6 |
| Oct-23 | 12.6 | 360 | 1,050 | 1,420 | 175 |
| Nov-23 | 11.8 | 405 | 899 | 1,220 | 127 |
| Dec-23 | 13.0 | 425 | 957 | 1,360 | 76.1 |
| Jan-24 | 14.7 | 657 | 1,160 | 1,680 | 149 |
| Feb-24 | 18.8 | 302 | 1,450 | 1,740 | 119 |
| Mar-24 | 12.8 | 82.1 | 1,030 | 1,060 | 98.8 |
| Apr-24 | 13.3 | 79.8 | 1,040 | 1,090 | 113 |
| May-24 | 10.7 | 14.6 | 759 | 782 | 118 |
| Jun-24 | 11.4 | 13.4 | 454 | 468 | 119 |
| Jul-24 | 10.3 | 11.2 | 561 | 570 | 154 |
| Aug-24 | 7.64 | 12.7 | 370 | 382 | 84.5 |
| Sep-24 | 12.6 | 107 | 754 | 902 | 91.5 |
|  |  |  |  |  |  |
| **Dry Season Average** | **9.04** | **18.3** | **454** | **473** | **186** |
| **Dry Season**  **Trend \*\*** | **Up** | **None** | **Up** | **Up** | **None** |
| **Wet Season**  **Average** | **12.5** | **259** | **904** | **1,160** | **219** |
| **Average Annual** | **11.1** | **159** | **716** | **872** | **205** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 30-2. Discharge: SVCW Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 13.1 | 1,930 | 30.2 | 1,960 | 171 |
| Nov-12 | 13.3 | 2,380 | 44.2 | 2,430 | 146 |
| Dec-12 | 16.0 | 2,260 | 80.0 | 2,340 | 240 |
| Jan-13 | 14.1 | 1,720 | 33.4 | 1,760 | 130 |
| Feb-13 | 12.9 | 1,940 | 19.4 | 1,960 | 149 |
| Mar-13 | 13.0 | 1,780 | 14.6 | 1,800 | 156 |
| Apr-13 | 13.4 | 1,950 | 81.0 | 2,030 | 170 |
| May-13 | 12.0 | 1,700 | 171 | 1,870 | 197 |
| Jun-13 | 12.1 | 1,490 | 159 | 1,650 | 195 |
| Jul-13 | 11.3 | 1,550 | 103 | 1,660 | 164 |
| Aug-13 | 12.0 | 2,010 | 77.7 | 2,090 | 196 |
| Sep-13 | 11.5 | 2,060 | 94.7 | 2,150 | 171 |
| Oct-13 | 11.7 | 1,720 | 157 | 1,880 | 170 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-13 | 12.8 | 2,240 | 81.6 | 2,320 | 204 |
| Dec-13 | 12.7 | 1,820 | 127 | 1,950 | 198 |
| Jan-14 | 13.0 | 2,420 | 74.1 | 2,490 | 187 |
| Feb-14 | 13.9 | 2,060 | 94.0 | 2,160 | 147 |
| Mar-14 | 13.3 | 1,970 | 32.4 | 2,000 | 188 |
| Apr-14 | 13.8 | 2,060 | 38.7 | 2,100 | 164 |
| May-14 | 11.8 | 2,050 | 35.4 | 2,090 | 163 |
| Jun-14 | 11.3 | 2,030 | 24.4 | 2,060 | 169 |
| Jul-14 | 10.7 | 1,580 | 43.4 | 1,620 | 174 |
| Aug-14 | 10.5 | 1,820 | 54.2 | 1,880 | 163 |
| Sep-14 | 10.7 | 1,990 | 45.4 | 2,030 | 136 |
| Oct-14 | 10.9 | 1,960 | 38.9 | 2,000 | 123 |
| Nov-14 | 11.4 | 2,020 | 59.4 | 2,080 | 206 |
| Dec-14 | 19.1 | 2,420 | 122 | 2,550 | 152 |
| Jan-15 | 12.6 | 2,100 | 28.0 | 2,130 | 233 |
| Feb-15 | 15.5 | 2,020 | 48.6 | 2,070 | 138 |
| Mar-15 | 12.3 | 2,660 | 32.8 | 2,690 | 189 |
| Apr-15 | 11.9 | 2,150 | 47.7 | 2,200 | 165 |
| May-15 | 11.1 | 2,060 | 71.8 | 2,130 | 214 |
| Jun-15 | 11.8 | 2,100 | 91.6 | 2,190 | 219 |
| Jul-15 | 12.1 | 2,320 | 67.9 | 2,390 | -- |
| Aug-15 | 12.5 | 2,680 | 57.2 | 2,730 | 204 |
| Sep-15 | 12.2 | 2,380 | 81.9 | 2,470 | 233 |
| Oct-15 | 12.8 | 2,260 | 62.6 | 2,320 | 215 |
| Nov-15 | 12.8 | 2,190 | 46.9 | 2,230 | 243 |
| Dec-15 | 14.2 | 2,850 | 39.8 | 2,890 | 253 |
| Jan-16 | 16.9 | 2,620 | 40.3 | 2,660 | 200 |
| Feb-16 | 14.6 | 3,140 | 42.5 | 3,190 | 260 |
| Mar-16 | 20.3 | 2,310 | 87.8 | 2,400 | 189 |
| Apr-16 | 14.5 | 2,770 | 89.3 | 2,860 | 243 |
| May-16 | 13.6 | 2,820 | 57.8 | 2,870 | 182 |
| Jun-16 | 12.6 | 2,350 | 23.6 | 2,370 | 158 |
| Jul-16 | 12.1 | 2,000 | 61.0 | 2,060 | 206 |
| Aug-16 | 11.9 | 2,700 | 23.1 | 2,730 | 209 |
| Sep-16 | 12.6 | 2,470 | 60.9 | 2,530 | 199 |
| Oct-16 | 14.4 | 2,400 | 32.6 | 2,440 | 239 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-16 | 14.1 | 2,630 | 32.1 | 2,670 | 242 |
| Dec-16 | 15.9 | 2,910 | 115 | 3,020 | 344 |
| Jan-17 | 25.1 | 1,860 | 115 | 1,970 | 187 |
| Feb-17 | 22.6 | 1,430 | 72.1 | 1,510 | 149 |
| Mar-17 | 19.0 | 3,390 | 80.6 | 3,470 | 190 |
| Apr-17 | 15.5 | 2,160 | 103 | 2,270 | 209 |
| May-17 | 13.9 | 2,440 | 106 | 2,540 | 217 |
| Jun-17 | 13.4 | 2,540 | 49.6 | 2,590 | 228 |
| Jul-17 | 12.6 | 2,360 | 46.8 | 2,410 | 203 |
| Aug-17 | 12.8 | 2,340 | 41.8 | 2,380 | 213 |
| Sep-17 | 13.0 | 2,260 | 31.7 | 2,300 | 194 |
| Oct-17 | 12.7 | 2,800 | 15.9 | 2,820 | 230 |
| Nov-17 | 14.4 | 2,970 | 62.0 | 3,030 | 210 |
| Dec-17 | 13.4 | 2,650 | 16.5 | 2,670 | 202 |
| Jan-18 | 16.7 | 2,920 | 14.2 | 2,940 | 197 |
| Feb-18 | 14.2 | 2,630 | 16.6 | 2,640 | 213 |
| Mar-18\*\* | 17.5 | 3,870 | 33.7 | 3,900 | 315 |
| Apr-18 | 15.5 | 2,660 | 29.2 | 2,690 | 256 |
| May-18 | 13.2 | 2,610 | 16.7 | 2,630 | 272 |
| Jun-18 | 12.6 | 2,570 | 20.0 | 2,590 | 212 |
| Jul-18 | 12.0 | 2,190 | 21.4 | 2,210 | 259 |
| Aug-18 | 12.4 | 1,940 | 12.3 | 1,950 | 216 |
| Sep-18 | 12.2 | 2,210 | 21.5 | 2,230 | 228 |
| Oct-18 | 12.6 | 2,110 | 17.6 | 2,130 | 228 |
| Nov-18 | 13.7 | 2,570 | 13.8 | 2,580 | 205 |
| Dec-18 | 14.5 | 3,380 | 18.8 | 3,400 | 271 |
| Jan-19 | 17.6 | 2,840 | 24.4 | 2,870 | 338 |
| Feb-19 | 25.1 | 2,830 | 46.9 | 2,870 | 265 |
| Mar-19 | 21.7 | 2,670 | 32.9 | 2,700 | 228 |
| Apr-19 | 15.8 | 2,570 | 23.7 | 2,590 | 238 |
| May-19 | 15.2 | 2,540 | 61.4 | 2,600 | 238 |
| Jun-19 | 13.5 | 2,330 | 11.8 | 2,340 | 205 |
| Jul-19 | 12.5 | 2,620 | 23.2 | 2,640 | 229 |
| Aug-19 | 12.6 | 2,490 | 17.5 | 2,510 | 228 |
| Sep-19 | 12.6 | 2,410 | 19.0 | 2,430 | 227 |
| Oct-19 | 12.7 | 2,430 | 12.4 | 2,440 | 236 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-19 | 13.9 | 3,000 | 15.8 | 3,010 | 290 |
| Dec-19 | 15.4 | 2,840 | 20.1 | 2,860 | 235 |
| Jan-20 | 15.2 | 2,610 | 10.9 | 2,620 | 233 |
| Feb-20 | 14.4 | 2,780 | 13.5 | 2,790 | 275 |
| Mar-20 | 15.0 | 2,770 | 31.0 | 2,800 | 237 |
| Apr-20 | 15.2 | 2,720 | 32.7 | 2,750 | 293 |
| May-20 | 13.8 | 2,660 | 34.2 | 2,690 | 261 |
| Jun-20 | 12.4 | 2,090 | 37.7 | 2,120 | 198 |
| Jul-20 | 12.3 | 2,210 | 36.5 | 2,250 | 208 |
| Aug-20 | 12.1 | 2,240 | 19.2 | 2,260 | 233 |
| Sep-20 | 12.2 | 2,420 | 23.1 | 2,440 | 227 |
| Oct-20 | 12.1 | 2,260 | 19.4 | 2,280 | 233 |
| Nov-20 | 12.5 | 2,390 | 29.6 | 2,420 | 219 |
| Dec-20 | 13.0 | 2,050 | 63.2 | 2,110 | 192 |
| Jan-21 | 14.4 | 2,130 | 26.2 | 2,150 | 220 |
| Feb-21 | 14.3 | 2,550 | 35.3 | 2,580 | 263 |
| Mar-21 | 14.1 | 2,430 | 44.1 | 2,480 | 249 |
| Apr-21 | 12.6 | 2,380 | 30.1 | 2,410 | 173 |
| May-21 | 12.0 | 2,730 | 30.7 | 2,760 | 204 |
| Jun-21 | 11.3 | 2,780 | 26.2 | 2,810 | 204 |
| Jul-21 | 11.0 | 2,490 | 32.3 | 2,520 | 212 |
| Aug-21 | 11.1 | 2,110 | 28.9 | 2,140 | 208 |
| Sep-21 | 11.3 | 2,230 | 40.7 | 2,270 | 223 |
| Oct-21 | 14.1 | 2,350 | 27.4 | 2,380 | 231 |
| Nov-21 | 13.1 | 2,200 | 173 | 2,370 | 268 |
| Dec-21 | 19.4 | 2,660 | 63.1 | 2,720 | 211 |
| Jan-22 | 14.7 | 2,880 | 20.0 | 2,900 | 249 |
| Feb-22 | 12.9 | 3,090 | 23.6 | 3,110 | 237 |
| Mar-22 | 12.7 | 3,240 | 17.5 | 3,260 | 213 |
| Apr-22 | 13.3 | 2,990 | 21.9 | 3,020 | 230 |
| May-22 | 12.1 | 2,680 | 19.7 | 2,700 | 206 |
| Jun-22 | 11.5 | 2,470 | 24.6 | 2,490 | 205 |
| Jul-22 | 10.9 | 2,190 | 51.2 | 2,240 | 217 |
| Aug-22 | 11.2 | 2,250 | 49.9 | 2,300 | 212 |
| Sep-22 | 11.5 | 2,430 | 125 | 2,560 | 227 |
| Oct-22 | 11.6 | 2,430 | 33.5 | 2,470 | 221 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-22 | 12.5 | 2,520 | 34.2 | 2,560 | 224 |
| Dec-22 | 17.1 | 2,230 | 24.9 | 2,250 | 186 |
| Jan-23 | 28.9 | 2,080 | 129 | 2,210 | 170 |
| Feb-23 | 17.4 | 2,800 | 11.8 | 2,810 | 191 |
| Mar-23 | 26.6 | 2,880 | 46.7 | 2,930 | 202 |
| Apr-23 | 16.0 | 2,790 | 20.9 | 2,810 | 196 |
| May-23 | 14.4 | 3,080 | 20.6 | 3,100 | 220 |
| Jun-23 | 12.6 | 2,890 | 15.8 | 2,910 | 210 |
| Jul-23 | 11.8 | 2,350 | 54.2 | 2,400 | 207 |
| Aug-23 | 12.4 | 2,160 | 42.0 | 2,210 | 275 |
| Sep-23 | 12.1 | 2,060 | 155 | 2,210 | 218 |
| Oct-23 | 12.0 | 2,080 | 102 | 2,180 | 241 |
| Nov-23 | 12.7 | 1,770 | 208 | 1,970 | 195 |
| Dec-23 | 14.4 | 2,280 | 136 | 2,410 | 221 |
| Jan-24 | 18.2 | 2,600 | 39.5 | 2,640 | 224 |
| Feb-24 | 21.9 | 2,620 | 44.6 | 2,660 | 209 |
| Mar-24 | 19.0 | 2,530 | 22.5 | 2,560 | 204 |
| Apr-24 | 16.1 | 2,480 | 23.0 | 2,500 | 194 |
| May-24 | 14.2 | 2,540 | 121 | 2,660 | 229 |
| Jun-24 | 12.7 | 2,170 | 288 | 2,460 | 236 |
| Jul-24 | 11.9 | 1,700 | 433 | 2,130 | 213 |
| Aug-24 | 12.4 | 1,650 | 311 | 1,960 | 192 |
| Sep-24 | 12.1 | 2,000 | 153 | 2,190 | 209 |
|  |  |  |  |  |  |
| **Dry Season Average** | **12.2** | **2,280** | **68.0** | **2,350** | **210** |
| **Dry Season Trend \*\*\*** | **None** | **Up** | **None** | **Up** | **Up** |
| **Wet Season**  **Average** | **15.2** | **2,460** | **50.2** | **2,510** | **215** |
| **Average Annual** | **14.0** | **2,380** | **57.6** | **2,440** | **213** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* One of the monthly nutrient sampling events (n=2) occurred during the maximum daily flow for that month. The loads are atypically high for this particular day due to a likely flushing phenomenon in the collection system.

\*\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 31-1. Discharge: Tiburon Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 0.610 | 64.6 | 0.284 | 64.8 | 8.76 |
| Nov-12 | 0.670 | 53.2 | 0.484 | 53.7 | 8.36 |
| Dec-12 | 1.16 | 48.2 | 6.58 | 54.8 | 6.14 |
| Jan-13 | 0.510 | 0.906 | 79.1 | 80.0 | 10.0 |
| Feb-13 | 0.460 | 55.6 | 9.91 | 65.6 | 6.43 |
| Mar-13 | 0.470 | 39.1 | 14.4 | 53.5 | 11.5 |
| Apr-13 | 0.501 | 36.0 | 27.6 | 63.6 | 8.71 |
| May-13 | 0.493 | 28.0 | 17.9 | 45.8 | 6.71 |
| Jun-13 | 0.537 | 36.5 | 11.2 | 47.7 | 8.53 |
| Jul-13 | 0.550 | -- | -- | -- | -- |
| Aug-13 | 0.540 | -- | -- | -- | -- |
| Sep-13 | 0.540 | -- | -- | -- | -- |
| Oct-13 | 0.510 | -- | -- | -- | -- |
| Nov-13 | 0.530 | -- | -- | -- | -- |
| Dec-13 | 0.560 | -- | -- | -- | -- |
| Jan-14 | 0.540 | -- | -- | -- | -- |
| Feb-14 | 0.860 | -- | -- | -- | -- |
| Mar-14 | 0.720 | -- | -- | -- | -- |
| Apr-14 | 0.670 | -- | -- | -- | -- |
| May-14 | 0.550 | -- | -- | -- | -- |
| Jun-14 | 0.550 | -- | -- | -- | -- |
| Jul-14 | 0.530 | -- | -- | -- | -- |
| Aug-14 | 0.540 | 48.3 | 7.78 | 56.1 | 7.88 |
| Sep-14 | 0.540 | -- | -- | -- | -- |
| Oct-14 | 0.530 | -- | -- | -- | -- |
| Nov-14 | 0.610 | 66.5 | 0.455 | 66.9 | 8.66 |
| Dec-14 | 1.48 | -- | -- | -- | -- |
| Jan-15 | 0.650 | -- | -- | -- | -- |
| Feb-15 | 0.650 | -- | -- | -- | -- |
| Mar-15 | 0.540 | -- | -- | -- | -- |
| Apr-15 | 0.560 | -- | -- | -- | -- |
| May-15 | 0.550 | -- | -- | -- | -- |
| Jun-15 | 0.550 | 47.9 | 4.83 | 52.7 | 8.38 |
| Jul-15 | -- | -- | -- | -- | -- |
| Aug-15 | -- | -- | -- | -- | -- |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-15 | 0.534 | 44.5 | 9.16 | 53.6 | 8.29 |
| Oct-15 | -- | -- | -- | -- | -- |
| Nov-15 | -- | -- | -- | -- | -- |
| Dec-15 | -- | -- | -- | -- | -- |
| Jan-16 | -- | -- | -- | -- | -- |
| Feb-16 | -- | -- | -- | -- | -- |
| Mar-16 | -- | -- | -- | -- | -- |
| Apr-16 | -- | -- | -- | -- | -- |
| May-16 | -- | -- | -- | -- | -- |
| Jun-16 | 0.559 | 55.0 | 7.60 | 62.6 | 9.20 |
| Jul-16 | 0.550 | -- | -- | -- | -- |
| Aug-16 | 0.557 | -- | -- | -- | -- |
| Sep-16 | 0.536 | -- | -- | -- | -- |
| Oct-16 | 0.579 | 37.8 | 7.41 | 45.2 | 8.94 |
| Nov-16 | 0.628 | -- | -- | -- | -- |
| Dec-16 | 0.904 | -- | -- | -- | -- |
| Jan-17 | 1.48 | -- | -- | -- | -- |
| Feb-17 | 1.51 | -- | -- | -- | -- |
| Mar-17 | 0.876 | -- | -- | -- | -- |
| Apr-17 | 0.735 | -- | -- | -- | -- |
| May-17 | 0.579 | 29.4 | 15.6 | 45.0 | 8.18 |
| Jun-17 | 0.566 | -- | -- | -- | -- |
| Jul-17 | 0.540 | -- | -- | -- | -- |
| Aug-17 | 0.559 | -- | -- | -- | -- |
| Sep-17 | 0.546 | -- | -- | -- | -- |
| Oct-17 | 0.529 | -- | -- | -- | -- |
| Nov-17 | 0.606 | 53.0 | 0.424 | 53.4 | 6.78 |
| Dec-17 | 0.558 | -- | -- | -- | -- |
| Jan-18 | 0.788 | -- | -- | -- | -- |
| Feb-18 | 0.534 | -- | -- | -- | -- |
| Mar-18 | 0.866 | -- | -- | -- | -- |
| Apr-18 | 0.790 | -- | -- | -- | -- |
| May-18 | 0.545 | 57.2 | 0.339 | 57.6 | 8.90 |
| Jun-18 | 0.549 | -- | -- | -- | -- |
| Jul-18 | -- | -- | -- | -- | -- |
| Aug-18 | -- | -- | -- | -- | -- |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-18 | -- | -- | -- | -- | -- |
| Oct-18 | 0.510 | 50.2 | 1.76 | 51.9 | 6.76 |
| Nov-18 | -- | -- | -- | -- | -- |
| Dec-18 | -- | -- | -- | -- | -- |
| Jan-19 | -- | -- | -- | -- | -- |
| Feb-19 | 0.830 | 47.1 | 0.314 | 47.4 | 5.65 |
| Mar-19 | -- | -- | -- | -- | -- |
| Apr-19 | -- | -- | -- | -- | -- |
| May-19 | -- | -- | -- | -- | -- |
| Jun-19 | -- | -- | -- | -- | -- |
| Jul-19 | -- | -- | -- | -- | -- |
| Aug-19 | -- | -- | -- | -- | -- |
| Sep-19 | -- | -- | -- | -- | -- |
| Oct-19 | 0.499 | 20.2 | -- | -- | -- |
| Nov-19 | 0.524 | 28.1 | -- | -- | -- |
| Dec-19 | 0.828 | 22.4 | -- | -- | -- |
| Jan-20 | 0.681 | 24.6 | 18.6 | 39.7 | 6.59 |
| Feb-20 | 0.523 | 36.5 | -- | -- | -- |
| Mar-20 | 0.568 | 37.8 | -- | -- | -- |
| Apr-20 | 0.571 | 45.5 | -- | -- | -- |
| May-20 | 0.533 | 34.3 | -- | -- | -- |
| Jun-20 | 0.515 | 25.5 | -- | -- | -- |
| Jul-20 | 0.532 | 42.3 | -- | -- | -- |
| Aug-20 | 0.578 | 15.8 | -- | -- | -- |
| Sep-20 | 0.524 | 19.7 | 26.3 | 27.7 | 4.61 |
| Oct-20 | 0.523 | 16.7 | -- | -- | -- |
| Nov-20 | 0.551 | 25.9 | -- | -- | -- |
| Dec-20 | 0.576 | 19.1 | -- | -- | -- |
| Jan-21 | 0.626 | 25.8 | -- | -- | -- |
| Feb-21 | 0.588 | 26.9 | -- | -- | -- |
| Mar-21 | 0.529 | 19.4 | -- | -- | -- |
| Apr-21 | 0.497 | 37.2 | 1.09 | 36.8 | 6.90 |
| May-21 | 0.486 | 33.5 | -- | -- | -- |
| Jun-21 | 0.482 | 36.3 | -- | -- | -- |
| Jul-21 | 0.491 | 52.9 | -- | -- | -- |
| Aug-21 | 0.499 | 49.4 | -- | -- | -- |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-21 | 0.468 | 44.7 | 0.0727 | 45.5 | 6.00 |
| Oct-21 | 0.745 | 42.2 | -- | -- | -- |
| Nov-21 | 0.701 | 38.9 | -- | -- | -- |
| Dec-21 | 1.11 | 29.2 | -- | -- | -- |
| Jan-22 | 0.703 | 13.6 | 34.3 | 66.8 | 10.2 |
| Feb-22 | 0.501 | 18.4 | -- | -- | -- |
| Mar-22 | 0.490 | 50.0 | -- | -- | -- |
| Apr-22 | 0.492 | 23.9 | -- | -- | -- |
| May-22 | 0.465 | 13.3 | -- | -- | -- |
| Jun-22 | 0.487 | 54.6 | -- | -- | -- |
| Jul-22 | 0.476 | 31.0 | 0.681 | 46.7 | 8.01 |
| Aug-22 | 0.470 | 24.2 | -- | -- | -- |
| Sep-22 | 0.468 | 42.8 | -- | -- | -- |
| Oct-22 | 0.379 | 24.1 | -- | -- | -- |
| Nov-22 | 0.482 | 49.1 | -- | -- | -- |
| Dec-22 | 0.840 | 48.5 | -- | -- | -- |
| Jan-23 | 1.56 | 48.2 | 1.38 | 51.6 | 1.23 |
| Feb-23 | 0.713 | 48.8 | 0.310 | 49.6 | 5.40 |
| Mar-23 | 1.16 | 46.8 | -- | -- | -- |
| Apr-23 | 0.650 | 26.9 | -- | -- | -- |
| May-23 | 0.610 | 10.7 | -- | -- | -- |
| Jun-23 | 0.559 | 23.4 | -- | -- | -- |
| Jul-23 | 0.538 | 12.1 | 14.5 | 43.5 | 2.90 |
| Aug-23 | 0.551 | 35.8 | -- | -- | -- |
| Sep-23 | 0.530 | 24.7 | -- | -- | -- |
| Oct-23 | 0.548 | 54.4 |  |  |  |
| Nov-23 | 0.603 | 21.7 |  |  |  |
| Dec-23 | 0.676 | 7.12 |  |  |  |
| Jan-24 | 0.967 | 44.1 |  |  |  |
| Feb-24 | 1.03 | 19.3 | 26.9 | 30.9 | 5.45 |
| Mar-24 | 0.731 | 23.6 |  |  |  |
| Apr-24 | 0.583 | 35.5 |  |  |  |
| May-24 | 0.533 | 46.1 |  |  |  |
| Jun-24 | 0.482 | 29.0 |  |  |  |
| Jul-24 | 0.472 | 38.9 | 1.82 | 41.8 | 5.27 |
| Aug-24 | 0.468 | 37.4 |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-24 | 0.453 | 32.5 |  |  |  |
|  |  |  |  |  |  |
| **Dry Season Average** | **0.515** | **35.1** | **9.06** | **48.2** | **7.14** |
| **Dry Season Trend\*\*,\*\*\*** | **Down** | **None** | **\*\*\*** | **\*\*\*** | **\*\*\*** |
| **Wet Season**  **Average** | **0.698** | **35.0** | **12.9** | **54.2** | **7.36** |
| **Average Annual** | **0.628** | **35.0** | **11.3** | **51.7** | **7.27** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

\*\*\* No statistical dry season trending analysis was performed on nutrient species (except ammonia) due to the limited number of samples required for minor dischargers.

**Table 32-1. Treasure Island Monthly Flows and Loads1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 0.299 | 0.757 | 10.1 | 10.8 | 1.94 |
| Nov-12 | 0.295 | 1.00 | 10.3 | 11.3 | 3.12 |
| Dec-12 | 0.437 | 0.297 | 12.0 | 12.3 | 2.16 |
| Jan-13 | 0.391 | 0.602 | 10.5 | 11.1 | 1.44 |
| Feb-13 | 0.330 | 0.387 | 13.7 | 14.1 | 2.48 |
| Mar-13 | 0.287 | 0.872 | 7.04 | 7.91 | 1.18 |
| Apr-13 | 0.299 | 0.509 | 12.4 | 12.9 | 0.113 |
| May-13 | 0.272 | 0.802 | 3.59 | 4.40 | 0.103 |
| Jun-13 | 0.314 | 1.40 | 10.5 | 11.9 | 3.04 |
| Jul-13 | 0.226 | 0.863 | 8.49 | 9.35 | 0.829 |
| Aug-13 | 0.283 | 1.79 | 8.23 | 10.0 | 0.107 |
| Sep-13 | 0.312 | 1.32 | 12.6 | 13.9 | 2.29 |
| Oct-13 | 0.299 | 0.411 | 12.7 | 13.1 | 3.09 |
| Nov-13 | 0.295 | 0.713 | 12.3 | 13.0 | 3.43 |
| Dec-13 | 0.437 | 1.55 | 18.2 | 19.7 | 2.67 |
| Jan-14 | 0.391 | 1.99 | 2.25 | 4.25 | 3.10 |
| Feb-14 | 0.330 | 1.69 | 10.5 | 12.2 | 4.20 |
| Mar-14 | 0.287 | 1.27 | 14.5 | 15.7 | 0.630 |
| Apr-14 | 0.299 | 0.976 | 15.7 | 16.7 | 4.73 |
| May-14 | 0.272 | 3.39 | 6.77 | 10.2 | 3.08 |
| Jun-14 | 0.314 | 2.75 | 9.43 | 12.2 | 3.38 |
| Jul-14 | 0.286 | 5.40 | 4.94 | 10.3 | 1.88 |
| Aug-14 | 0.278 | 5.26 | 8.53 | 13.8 | 3.91 |
| Sep-14 | 0.314 | 5.94 | 19.1 | 25.1 | 1.97 |
| Oct-14 | 0.311 | 5.87 | 4.60 | 10.5 | 3.87 |
| Nov-14 | 0.299 | 5.66 | 8.62 | 14.3 | 2.60 |
| Dec-14 | 0.591 | 11.2 | 15.4 | 26.6 | 4.02 |
| Jan-15 | 0.352 | 6.66 | 9.01 | 15.7 | 0.840 |
| Feb-15 | 0.356 | 6.72 | 11.1 | 17.8 | 4.03 |
| Mar-15 | 0.317 | 6.00 | 15.4 | 21.4 | 3.14 |
| Apr-15 | 0.292 | 5.52 | 11.7 | 17.2 | 5.97 |
| May-15 | 0.271 | 6.14 | 7.22 | 13.4 | 2.52 |
| Jun-15 | 0.282 | 15.0 | 10.3 | 25.3 | 5.24 |
| Jul-15 | 0.271 | 5.20 | 9.30 | 14.5 | 3.47 |
| Aug-15 | 0.285 | 18.7 | 14.2 | 33.0 | 4.98 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-15 | 0.263 | 7.63 | 10.9 | 18.5 | 3.73 |
| Oct-15 | 0.297 | 15.2 | 5.09 | 20.3 | 4.58 |
| Nov-15 | 0.262 | 11.3 | 3.62 | 15.0 | 4.03 |
| Dec-15 | 0.317 | 10.8 | 3.98 | 14.8 | 3.17 |
| Jan-16 | 0.480 | 4.19 | 13.7 | 17.9 | 4.08 |
| Feb-16 | 0.343 | 25.3 | 8.90 | 34.2 | 3.07 |
| Mar-16 | 0.569 | 11.0 | 7.14 | 18.2 | 4.15 |
| Apr-16 | 0.331 | 3.48 | 15.1 | 18.6 | 3.83 |
| May-16 | 0.283 | 5.45 | 18.4 | 23.9 | 4.84 |
| Jun-16 | 0.289 | 4.45 | 11.9 | 16.3 | 4.60 |
| Jul-16 | 0.260 | 2.65 | 4.51 | 7.16 | 4.51 |
| Aug-16 | 0.274 | 4.55 | 7.42 | 12.0 | 4.55 |
| Sep-16 | 0.260 | 3.71 | 7.09 | 10.8 | 3.82 |
| Oct-16 | 0.275 | 2.45 | 9.70 | 12.2 | 4.07 |
| Nov-16 | 0.338 | 4.58 | 11.0 | 15.5 | 3.46 |
| Dec-16 | 0.342 | 6.10 | 3.85 | 9.95 | 3.73 |
| Jan-17 | 0.648 | 4.52 | 3.52 | 8.04 | 4.10 |
| Feb-17 | 0.668 | 11.0 | 14.1 | 25.1 | 7.18 |
| Mar-17 | 0.466 | 7.81 | 17.9 | 25.7 | 3.63 |
| Apr-17 | 0.373 | 4.34 | 21.1 | 25.5 | 4.11 |
| May-17 | 0.307 | 3.87 | 17.7 | 21.6 | 3.94 |
| Jun-17 | 0.264 | 3.44 | 8.38 | 11.8 | 4.93 |
| Jul-17 | 0.267 | 3.12 | 11.3 | 14.5 | 3.91 |
| Aug-17 | 0.274 | 5.61 | 7.26 | 12.9 | 4.59 |
| Sep-17 | 0.275 | 4.23 | 8.17 | 12.4 | 6.35 |
| Oct-17 | 0.252 | 2.88 | 14.8 | 17.7 | 3.85 |
| Nov-17 | 0.267 | 2.92 | 6.90 | 9.82 | 3.28 |
| Dec-17 | 0.259 | 2.76 | 9.85 | 12.6 | 1.11 |
| Jan-18 | 0.347 | 4.09 | 6.50 | 10.6 | 2.71 |
| Feb-18 | 0.301 | 3.72 | 4.49 | 8.22 | 3.94 |
| Mar-18 | 0.385 | 3.84 | 4.75 | 8.59 | 3.35 |
| Apr-18 | 0.418 | 3.66 | 4.57 | 8.23 | 3.52 |
| May-18 | 0.364 | 3.67 | 8.79 | 12.5 | 3.56 |
| Jun-18 | 0.287 | 3.88 | 5.49 | 9.37 | 4.32 |
| Jul-18 | 0.286 | 3.11 | 11.3 | 14.4 | 3.68 |
| Aug-18 | 0.301 | 3.26 | 5.92 | 9.18 | 3.58 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-18 | 0.292 | 19.3 | 3.21 | 22.5 | 2.91 |
| Oct-18 | 0.283 | 3.26 | 3.92 | -- | 3.25 |
| Nov-18 | 0.442 | 3.13 | 7.32 | 10.5 | 3.54 |
| Dec-18 | 0.416 | -- | -- | -- | -- |
| Jan-19 | 0.541 | 6.85 | 3.27 | 10.1 | 3.06 |
| Feb-19 | 0.723 | 7.27 | 11.3 | 18.6 | 3.00 |
| Mar-19 | 0.599 | 6.98 | 10.6 | 17.6 | 3.45 |
| Apr-19 | 0.405 | 4.31 | 6.19 | 11.3 | 3.64 |
| May-19 | 0.351 | 3.75 | 4.12 | 7.87 | 2.77 |
| Jun-19 | 0.329 | 4.02 | 8.01 | 12.0 | 3.36 |
| Jul-19 | 0.288 | 3.45 | 12.5 | 16.0 | 3.01 |
| Aug-19 | 0.288 | 3.00 | 15.3 | 18.3 | 3.50 |
| Sep-19 | 0.278 | 2.82 | 13.4 | 16.2 | 1.33 |
| Oct-19 | 0.264 | 3.32 | 9.25 | 12.6 | 3.34 |
| Nov-19 | 0.281 | 2.96 | 15.8 | 18.8 | 3.24 |
| Dec-19 | 0.352 | 3.64 | 18.3 | 22.0 | 2.94 |
| Jan-20 | 0.361 | 3.82 | 20.3 | 24.2 | 3.15 |
| Feb-20 | 0.319 | 3.99 | 22.6 | 26.6 | 3.35 |
| Mar-20 | 0.309 | 3.38 | 18.0 | 21.4 | 3.20 |
| Apr-20 | 0.271 | 3.46 | 19.6 | 23.1 | 3.87 |
| May-20 | 0.267 | 3.00 | 17.0 | 20.0 | 3.16 |
| Jun-20 | 0.267 | 7.88 | 28.5 | 36.4 | 6.19 |
| Jul-20 | 0.241 | 2.62 | 9.62 | 12.2 | 2.30 |
| Aug-20 | 0.256 | 3.03 | 17.2 | 20.2 | 2.63 |
| Sep-20 | 0.231 | 2.53 | 11.0 | 13.5 | 2.43 |
| Oct-20 | 0.233 | 2.50 | 11.7 | 14.2 | 2.66 |
| Nov-20 | 0.216 | 2.53 | 15.2 | 17.7 | 2.41 |
| Dec-20 | 0.234 | 2.27 | 14.4 | 16.7 | 2.42 |
| Jan-21 | 0.232 | 3.83 | 17.4 | 21.2 | 2.93 |
| Feb-21 | 0.247 | 3.10 | 15.7 | 18.8 | 2.62 |
| Mar-21 | 0.227 | 2.54 | 15.7 | 18.2 | 2.53 |
| Apr-21 | 0.230 | 3.22 | 20.4 | 23.6 | 3.33 |
| May-21 | 0.211 | 2.99 | 22.9 | 25.9 | 3.21 |
| Jun-21 | 0.236 | 6.27 | 20.4 | 26.6 | 2.97 |
| Jul-21 | 0.235 | 3.68 | 6.48 | 10.2 | 2.53 |
| Aug-21 | 0.255 | 2.95 | 12.6 | 15.5 | 3.28 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-21 | 0.254 | 2.75 | 16.2 | 19.0 | 2.92 |
| Oct-21 | 0.346 | 4.86 | 10.4 | 15.3 | 2.51 |
| Nov-21 | 0.377 | 4.16 | 10.1 | 14.2 | 3.44 |
| Dec-21 | 0.499 | 3.58 | 3.24 | 6.82 | 2.75 |
| Jan-22 | 0.391 | 4.54 | 11.0 | 15.6 | 5.56 |
| Feb-22 | 0.311 | 3.57 | 8.91 | 12.5 | 2.73 |
| Mar-22 | 0.283 | 3.28 | 20.8 | 24.1 | 2.84 |
| Apr-22 | 0.268 | 2.96 | 11.9 | 14.8 | 2.47 |
| May-22 | 0.252 | 2.68 | 8.04 | 10.7 | 2.32 |
| Jun-22 | 0.253 | 2.60 | 19.1 | 21.7 | 2.34 |
| Jul-22 | 0.301 | 3.17 | 18.0 | 21.1 | 2.75 |
| Aug-22 | 0.278 | 3.37 | 20.2 | 23.6 | 2.81 |
| Sep-22 | 0.278 | 3.21 | 19.3 | 22.5 | 2.68 |
| Oct-22 | 0.281 | 3.11 | 22.8 | 25.9 | 2.39 |
| Nov-22 | 0.274 | 3.42 | 18.2 | 21.6 | 2.39 |
| Dec-22 | 0.408 | 3.54 | 17.7 | 21.3 | 2.60 |
| Jan-23 | 0.799 | 5.98 | 18.8 | 24.7 | 2.99 |
| Feb-23 | 0.401 | 4.27 | 24.2 | 28.5 | 3.27 |
| Mar-23 | 0.691 | 4.63 | 18.5 | 23.2 | 2.93 |
| Apr-23 | 0.364 | 5.09 | 23.7 | 28.8 | 2.88 |
| May-23 | 0.320 | 3.68 | 19.6 | 23.3 | 3.07 |
| Jun-23 | 0.289 | 3.82 | 22.9 | 26.7 | 3.18 |
| Jul-23 | 0.314 | 3.11 | 21.8 | 24.9 | 3.21 |
| Aug-23 | 0.348 | 5.53 | 24.0 | 29.5 | 5.16 |
| Sep-23 | 0.342 | 3.95 | 19.8 | 23.7 | 3.95 |
| Oct-23 | 0.280 | 1.60 | 22.4 | 24.0 | 3.20 |
| Nov-23 | 0.294 | 1.42 | 19.9 | 21.3 | 3.12 |
| Dec-23 | 0.351 | 1.53 | 22.4 | 23.9 | 3.56 |
| Jan-24 | 0.432 | 3.43 | 22.9 | 26.3 | 4.12 |
| Feb-24 | 0.623 | 2.91 | 23.3 | 26.2 | 1.71 |
| Mar-24 | 0.433 | 2.76 | 22.1 | 24.8 | 3.31 |
| Apr-24 | 0.361 | 2.15 | 21.5 | 23.7 | 3.30 |
| May-24 | 0.333 | 1.86 | 24.8 | 26.6 | 3.47 |
| Jun-24 | 0.215 | 1.15 | 14.6 | 15.8 | 2.15 |
| Jul-24 | 0.312 | 1.83 | 25.6 | 27.4 | 4.14 |
| Aug-24 | 0.304 | 1.43 | 20.9 | 22.3 | 3.52 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Sep-24 | 0.317 | 1.48 | 21.7 | 23.1 | 3.15 |
|  |  |  |  |  |  |
| **Dry Season Average** | **0.283** | **4.23** | **13.3** | **17.8** | **3.30** |
| **Dry Season**  **Trend\*\*** | **None** | **None** | **Up** | **Up** | **None** |
| **Wet Season**  **Average** | **0.367** | **4.28** | **13.0** | **17.4** | **3.18** |
| **Average Annual** | **0.332** | **4.26** | **13.1** | **17.4** | **3.23** |

1 Per Order R2-2024-0013 Table E-3 footnote [2], for non-detect results for samples on October 1, 2023 and after, half of the method detection limit was used to quantify estimated load values. Prior to October 1, 2023, non- detect values used the method detection limit.

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 33-2. Discharge: Vallejo Monthly Flows and Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Oct-12 | 10.1 | 374 | 206 | 580 | 123 |
| Nov-12 | 12.6 | 461 | 352 | 813 | 164 |
| Dec-12 | 19.0 | 391 | 474 | 865 | 103 |
| Jan-13 | 10.5 | 539 | 224 | 762 | 118 |
| Feb-13 | 9.48 | 492 | 317 | 809 | 120 |
| Mar-13 | 9.51 | 368 | 379 | 747 | 135 |
| Apr-13 | 9.30 | 318 | 561 | 879 | 121 |
| May-13 | 8.80 | 276 | 336 | 612 | 120 |
| Jun-13 | 8.63 | 499 | 338 | 837 | 126 |
| Jul-13 | 9.04 | 486 | 304 | 790 | 130 |
| Aug-13 | 8.65 | 486 | 387 | 873 | 121 |
| Sep-13 | 8.65 | 426 | 218 | 643 | 131 |
| Oct-13 | 8.49 | 535 | 253 | 788 | 125 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-13 | 9.31 | 681 | 222 | 903 | 144 |
| Dec-13 | 8.52 | 804 | 171 | 975 | 129 |
| Jan-14 | 8.51 | 788 | 126 | 913 | 130 |
| Feb-14 | 10.7 | 592 | 272 | 864 | 152 |
| Mar-14 | 10.4 | 428 | 285 | 713 | 122 |
| Apr-14 | 10.1 | 410 | 327 | 738 | 134 |
| May-14 | 8.43 | 542 | 188 | 731 | 116 |
| Jun-14 | 8.92 | 624 | 256 | 880 | 133 |
| Jul-14 | 8.77 | 540 | 256 | 796 | 128 |
| Aug-14 | 8.73 | 736 | 201 | 937 | 112 |
| Sep-14 | 8.81 | 781 | 131 | 912 | 129 |
| Oct-14 | 8.49 | 831 | 105 | 936 | 103 |
| Nov-14 | 8.97 | 867 | 30.4 | 897 | 116 |
| Dec-14 | 21.8 | 1,050 | 118 | 1,170 | 104 |
| Jan-15 | 9.83 | 1,060 | 15.9 | 1,080 | 105 |
| Feb-15 | 11.8 | 846 | 229 | 1,070 | 137 |
| Mar-15 | 9.28 | 775 | 117 | 892 | 129 |
| Apr-15 | 9.01 | 846 | 142 | 987 | 120 |
| May-15 | 8.53 | 911 | 115 | 1,030 | 132 |
| Jun-15 | 8.32 | 865 | 58.6 | 924 | 136 |
| Jul-15 | 8.28 | 688 | 138 | 826 | 144 |
| Aug-15 | 7.99 | 696 | 140 | 836 | 135 |
| Sep-15 | 7.93 | 815 | 68.0 | 883 | 119 |
| Oct-15 | 7.65 | 839 | 111 | 950 | 113 |
| Nov-15 | 7.92 | 776 | 74.3 | 850 | 110 |
| Dec-15 | 8.92 | 935 | 52.9 | 988 | 118 |
| Jan-16 | 13.9 | 934 | 348 | 1,280 | 138 |
| Feb-16 | 9.77 | 758 | 170 | 928 | 161 |
| Mar-16 | 16.6 | 580 | 281 | 862 | 124 |
| Apr-16 | 9.69 | 637 | 139 | 776 | 113 |
| May-16 | 8.84 | 713 | 131 | 844 | 119 |
| Jun-16 | 8.56 | 686 | 197 | 883 | 155 |
| Jul-16 | 8.32 | 701 | 91.8 | 793 | 122 |
| Aug-16 | 8.23 | 760 | 91.1 | 851 | 58.4 |
| Sep-16 | 8.04 | 667 | 145 | 812 | 126 |
| Oct-16 | 8.55 | 703 | 102 | 805 | 114 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-16 | 8.90 | 722 | 88.4 | 811 | 106 |
| Dec-16 | 11.5 | 696 | 205 | 901 | 229 |
| Jan-17 | 24.5 | 646 | 166 | 812 | 140 |
| Feb-17 | 24.4 | 931 | 178 | 1,110 | 193 |
| Mar-17 | 15.5 | 1,030 | 16.8 | 1,050 | 157 |
| Apr-17 | 14.2 | 924 | 114 | 1,040 | 126 |
| May-17 | 9.37 | 760 | 107 | 867 | 161 |
| Jun-17 | 8.81 | 751 | 106 | 856 | 124 |
| Jul-17 | 8.54 | 629 | 187 | 815 | 121 |
| Aug-17 | 8.51 | 824 | 104 | 928 | 76.0 |
| Sep-17 | 8.30 | 797 | 86.0 | 883 | 117 |
| Oct-17 | 7.95 | 860 | 91.7 | 951 | 76.5 |
| Nov-17 | 8.94 | 737 | 73.7 | 811 | 98.2 |
| Dec-17 | 7.87 | 815 | 53.5 | 868 | 58.2 |
| Jan-18 | 10.5 | 771 | 82.3 | 853 | 103 |
| Feb-18 | 8.46 | 771 | 94.5 | 865 | 126 |
| Mar-18 | 13.1 | 948 | 176 | 1,120 | 130 |
| Apr-18 | 12.2 | 1,410 | 136 | 1,550 | 182 |
| May-18 | 8.51 | 846 | 83.4 | 930 | 92.8 |
| Jun-18 | 7.94 | 709 | 113 | 822 | 118 |
| Jul-18 | 7.87 | 636 | 116 | 734 | 106 |
| Aug-18 | 7.78 | 738 | 66.6 | 805 | 106 |
| Sep-18 | 7.59 | 903 | 54.0 | 863 | 129 |
| Oct-18 | 7.45 | 1,100 | 12.7 | 1,070 | 151 |
| Nov-18 | 8.60 | 1,100 | 6.07 | 1,100 | 109 |
| Dec-18 | 9.05 | 727 | 50.6 | 725 | 114 |
| Jan-19 | 11.8 | 659 | 106 | 691 | 83.1 |
| Feb-19 | 18.8 | 800 | 150 | 817 | 94.9 |
| Mar-19 | 14.9 | 1,050 | 230 | 1,280 | 101 |
| Apr-19 | 9.61 | 807 | 151 | 958 | 127 |
| May-19 | 9.13 | 870 | 109 | 979 | 109 |
| Jun-19 | 8.17 | 804 | 122 | 926 | 108 |
| Jul-19 | 7.86 | 638 | 163 | 801 | 105 |
| Aug-19 | 7.63 | 848 | 72.1 | 920 | 97.5 |
| Sep-19 | 7.72 | 793 | 82.6 | 876 | 85.3 |
| Oct-19 | 7.29 | 733 | 104 | 837 | 102 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-19 | 7.90 | 831 | 130 | 961 | 104 |
| Dec-19 | 10.5 | 628 | 168 | 796 | 93.2 |
| Jan-20 | 9.40 | 787 | 110 | 897 | 113 |
| Feb-20 | 8.34 | 766 | 95.9 | 862 | 118 |
| Mar-20 | 8.93 | 721 | 49.6 | 857 | 130 |
| Apr-20 | 8.42 | 588 | 195 | 761 | 86.6 |
| May-20 | 8.01 | 798 | 92.6 | 915 | 116 |
| Jun-20 | 7.84 | 629 | 124 | 728 | 115 |
| Jul-20 | 7.72 | 646 | 153 | 774 | 102 |
| Aug-20 | 7.50 | 713 | 76.9 | 862 | 107 |
| Sep-20 | 7.67 | 825 | 45.5 | 828 | 78.2 |
| Oct-20 | 7.52 | 755 | 58.6 | 880 | 58.0 |
| Nov-20 | 7.69 | 883 | 54.7 | 927 | 112 |
| Dec-20 | 7.67 | 861 | 45.9 | 907 | 119 |
| Jan-21 | 8.50 | 778 | 76.5 | 855 | 93.9 |
| Feb-21 | 8.30 | 762 | 174 | 936 | 97.6 |
| Mar-21 | 8.17 | 775 | 84.9 | 860 | 106 |
| Apr-21 | 7.47 | 521 | 233 | 755 | 151 |
| May-21 | 7.75 | 864 | 121 | 986 | 120 |
| Jun-21 | 7.51 | 625 | 141 | 766 | 125 |
| Jul-21 | 7.78 | 599 | 152 | 750 | 121 |
| Aug-21 | 7.63 | 671 | 127 | 797 | 119 |
| Sep-21 | 7.66 | 704 | 69.0 | 773 | 114 |
| Oct-21 | 11.0 | 593 | 84.0 | 677 | 119 |
| Nov-21 | 10.2 | 759 | 159 | 918 | 120 |
| Dec-21 | 18.6 | 852 | 129 | 982 | 133 |
| Jan-22 | 11.6 | 714 | 91.9 | 806 | 113 |
| Feb-22 | 9.12 | 724 | 161 | 885 | 111 |
| Mar-22 | 8.79 | 808 | 187 | 996 | 133 |
| Apr-22 | 8.14 | 637 | 166 | 803 | 123 |
| May-22 | 7.69 | 514 | 211 | 725 | 113 |
| Jun-22 | 7.51 | 790 | 125 | 914 | 132 |
| Jul-22 | 7.33 | 511 | 199 | 709 | 105 |
| Aug-22 | 7.26 | 604 | 125 | 729 | 98.5 |
| Sep-22 | 7.31 | 581 | 186 | 767 | 105 |
| Oct-22 | 7.14 | 576 | 124 | 701 | 95.6 |
| **Month, Year** | **Flow** | **Ammonia** | **Nitrate + Nitrite** | **TIN\*** | **Total P** |
| **mgd** | **kg N/day** | **kg N/day** | **kg N/day** | **kg P/day** |
| Nov-22 | 7.28 | 579 | 119 | 698 | 108 |
| Dec-22 | 11.3 | 585 | 178 | 763 | 96.9 |
| Jan-23 | 23.6 | 729 | 495 | 1,220 | 98.8 |
| Feb-23 | 11.0 | 732 | 127 | 859 | 116 |
| Mar-23 | 21.1 | 847 | 216 | 1,060 | 148 |
| Apr-23 | 9.85 | 564 | 116 | 681 | 90.1 |
| May-23 | 8.42 | 623 | 153 | 776 | 105 |
| Jun-23 | 7.95 | 592 | 202 | 794 | 122 |
| Jul-23 | 7.54 | 650 | 157 | 806 | 104 |
| Aug-23 | 7.54 | 565 | 184 | 749 | 106 |
| Sep-23 | 7.40 | 467 | 181 | 648 | 90.6 |
| Oct-23 | 7.23 | 512 | 148 | 659 | 109 |
| Nov-23 | 7.70 | 463 | 229 | 692 | 115 |
| Dec-23 | 9.13 | 628 | 245 | 873 | 119 |
| Jan-24 | 11.1 | 454 | 298 | 751 | 101 |
| Feb-24 | 17.9 | 471 | 280 | 751 | 103 |
| Mar-24 | 10.9 | 628 | 279 | 907 | 109 |
| Apr-24 | 8.98 | 868 | 12.7 | 881 | 127 |
| May-24 | 10.3 | 768 | 17.4 | 785 | 82.4 |
| Jun-24 | 8.12 | 790 | 9.66 | 800 | 152 |
| Jul-24 | 8.58 | 834 | 10.9 | 845 | 105 |
| Aug-24 | 8.71 | 1,210 | 30.5 | 1,240 | 114 |
| Sep-24 | 7.33 | 758 | 6.79 | 765 | 86.3 |
|  |  |  |  |  |  |
| **Dry Season Average** | **8.17** | **696** | **138** | **832** | **115** |
| **Dry Season**  **Trend \*\*** | **Down** | **None** | **Down** | **None** | **Down** |
| **Wet Season**  **Average** | **10.9** | **729** | **164** | **891** | **119** |
| **Average Annual** | **9.76** | **715** | **153** | **867** | **117** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values for days when sampling occurred. Note: the ammonia sampling is typically more frequent than the other nitrogen species which can lead to average monthly ammonia values being greater than average monthly TIN values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.

**Table 34-2. Discharge: West County Wastewater - City of Richmond Joint Outfall Monthly Flows and Loads for Both Treatment Plants at the Common Outfall**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month, Year** | **Flow**  **mgd** | **Ammonia**  **kg N/day** | **Nitrate + Nitrite**  **kg N/day** | **TIN\***  **kg N/day** | **Total P**  **kg P/day** |
| Oct-12 | 8.85 | 682 | 166 | 848 | 65.5 |
| Nov-12 | 9.27 | 824 | 147 | 971 | 49.0 |
| Dec-12 | 16.0 | 470 | 497 | 967 | 92.6 |
| Jan-13 | 9.55 | 607 | 182 | 789 | 63.4 |
| Feb-13 | 8.81 | 686 | 169 | 856 | 57.4 |
| Mar-13 | 7.40 | 631 | 116 | 747 | 47.3 |
| Apr-13 | 7.22 | 635 | 47.0 | 682 | 38.5 |
| May-13 | 6.16 | 652 | 3.26 | 655 | 73.4 |
| Jun-13 | 7.77 | 758 | 15.3 | 773 | 41.7 |
| Jul-13 | 6.36 | 648 | 6.13 | 654 | 28.8 |
| Aug-13 | 6.23 | 601 | 12.7 | 613 | 39.8 |
| Sep-13 | 6.24 | 608 | 10.4 | 618 | 43.6 |
| Oct-13 | 6.60 | 662 | 30.3 | 692 | 38.0 |
| **Month, Year** | **Flow**  **mgd** | **Ammonia**  **kg N/day** | **Nitrate + Nitrite**  **kg N/day** | **TIN\***  **kg N/day** | **Total P**  **kg P/day** |
| Nov-13 | 7.42 | 690 | 63.6 | 754 | 67.3 |
| Dec-13 | 6.93 | 646 | 141 | 787 | 57.6 |
| Jan-14 | 9.09 | 664 | 348 | 1,010 | 85.2 |
| Feb-14 | 18.7 | 753 | 647 | 1,400 | 129 |
| Mar-14 | 13.1 | 620 | 349 | 969 | 73.7 |
| Apr-14 | 6.89 | 579 | 106 | 685 | 67.3 |
| May-14 | 6.16 | 681 | 40.4 | 722 | 53.9 |
| Jun-14 | 7.77 | 680 | 25.6 | 706 | 56.9 |
| Jul-14 | 6.33 | 590 | 34.5 | 624 | 37.0 |
| Aug-14 | 5.98 | 618 | 3.84 | 622 | 26.8 |
| Sep-14 | 5.71 | 626 | 15.0 | 641 | 35.7 |
| Oct-14 | 5.88 | 571 | 15.0 | 586 | 39.4 |
| Nov-14 | 6.37 | 596 | 7.47 | 604 | 36.5 |
| Dec-14 | 19.8 | 433 | 358 | 791 | 68.3 |
| Jan-15 | 7.93 | 662 | 121 | 783 | 68.5 |
| Feb-15 | 8.85 | 656 | 43.2 | 700 | 39.4 |
| Mar-15 | 5.98 | 596 | 21.9 | 617 | 39.0 |
| Apr-15 | 5.91 | 595 | 14.7 | 610 | 35.1 |
| May-15 | 5.60 | 689 | 1.51 | 691 | 33.1 |
| Jun-15 | 5.57 | 646 | 6.68 | 653 | 29.8 |
| Jul-15 | 5.66 | 697 | 11.6 | 709 | 79.9 |
| Aug-15 | 5.58 | 606 | 38.2 | 645 | 48.4 |
| Sep-15 | 5.66 | 686 | 32.9 | 719 | 41.5 |
| Oct-15 | 6.15 | 745 | 46.5 | 792 | 67.9 |
| Nov-15 | 6.41 | 772 | 47.0 | 819 | 29.5 |
| Dec-15 | 9.24 | 896 | 108 | 1,000 | 73.9 |
| Jan-16 | 17.8 | 1,080 | 427 | 1,500 | 84.8 |
| Feb-16 | 10.4 | 833 | 189 | 1,020 | 64.3 |
| Mar-16 | 18.6 | 602 | 344 | 946 | 68.8 |
| Apr-16 | 9.06 | 745 | 50.2 | 795 | 46.2 |
| May-16 | 8.87 | 843 | 77.4 | 921 | 71.6 |
| Jun-16 | 8.71 | 960 | 88.0 | 1,050 | 66.0 |
| Jul-16 | 8.35 | 846 | 86.0 | 932 | 78.2 |
| Aug-16 | 8.64 | 736 | 134 | 869 | 81.2 |
| Sep-16 | 9.12 | 693 | 126 | 819 | 78.9 |
| Oct-16 | 9.42 | 572 | 210 | 782 | 120 |
| **Month, Year** | **Flow**  **mgd** | **Ammonia**  **kg N/day** | **Nitrate + Nitrite**  **kg N/day** | **TIN\***  **kg N/day** | **Total P**  **kg P/day** |
| Nov-16 | 9.25 | 531 | 308 | 839 | 96.7 |
| Dec-16 | 13.9 | 968 | 725 | 1,690 | 127 |
| Jan-17 | 25.9 | 536 | 903 | 1,440 | 128 |
| Feb-17 | 27.7 | 935 | 414 | 1,350 | 58.3 |
| Mar-17 | 14.1 | 671 | 536 | 1,210 | 100 |
| Apr-17 | 13.2 | 796 | 544 | 1,340 | 67.4 |
| May-17 | 10.0 | 721 | 567 | 1,290 | 99.8 |
| Jun-17 | 8.99 | 641 | 388 | 1,030 | 54.2 |
| Jul-17 | 8.32 | 749 | 280 | 1,030 | 65.6 |
| Aug-17 | 8.01 | 736 | 112 | 848 | 70.1 |
| Sep-17 | 7.91 | 781 | 226 | 1,010 | 75.0 |
| Oct-17 | 8.04 | 616 | 131 | 747 | 72.4 |
| Nov-17 | 9.12 | 1,060 | 151 | 1,210 | 199 |
| Dec-17 | 8.16 | 867 | 41.8 | 908 | 76.5 |
| Jan-18 | 12.5 | 481 | 406 | 887 | 91.3 |
| Feb-18 | 9.04 | 720 | 226 | 946 | 99.1 |
| Mar-18 | 16.0 | 722 | 218 | 939 | 98.6 |
| Apr-18 | 13.0 | 602 | 211 | 814 | 106 |
| May-18 | 8.83 | 677 | 245 | 922 | 145 |
| Jun-18 | 8.57 | 651 | 129 | 780 | 76.5 |
| Jul-18 | 8.73 | 670 | 71.9 | 741 | 66.9 |
| Aug-18 | 8.65 | 744 | 64.3 | 808 | 70.7 |
| Sep-18 | 8.60 | 649 | 131 | 780 | 111 |
| Oct-18 | 8.29 | 629 | 117 | 724 | 114 |
| Nov-18 | 9.82 | 1,230 | 89.8 | 1,320 | 127 |
| Dec-18 | 12.7 | 855 | 128 | 983 | 124 |
| Jan-19 | 17.8 | 1,020 | 139 | 1,150 | 139 |
| Feb-19 | 26.2 | 536 | 201 | 736 | 88.1 |
| Mar-19 | 20.7 | 1,130 | 167 | 1,300 | 223 |
| Apr-19 | 13.7 | 780 | 190 | 970 | 137 |
| May-19 | 13.1 | 799 | 186 | 984 | 86.9 |
| Jun-19 | 9.82 | 864 | 71.7 | 935 | 85.3 |
| Jul-19 | 10.1 | 866 | 104 | 969 | 76.8 |
| Aug-19 | 10.3 | 1,120 | 32.0 | 1,150 | 67.3 |
| Sep-19 | 7.49 | 709 | 28.1 | 737 | 45.9 |
| Oct-19 | 6.05 | 659 | 3.30 | 663 | 52.6 |
| **Month, Year** | **Flow**  **mgd** | **Ammonia**  **kg N/day** | **Nitrate + Nitrite**  **kg N/day** | **TIN\***  **kg N/day** | **Total P**  **kg P/day** |
| Nov-19 | 6.87 | 880 | 12.9 | 893 | 56.7 |
| Dec-19 | 10.9 | 684 | 67.0 | 751 | 119 |
| Jan-20 | 9.03 | 1,090 | 61.8 | 1,160 | 61.8 |
| Feb-20 | 8.63 | 873 | 17.6 | 881 | 59.2 |
| Mar-20 | 8.35 | 816 | 32.2 | 864 | 75.2 |
| Apr-20 | 7.88 | 666 | 63.0 | 729 | 72.1 |
| May-20 | 6.46 | 619 | 19.8 | 639 | 46.2 |
| Jun-20 | 6.63 | 827 | 96.6 | 923 | 88.1 |
| Jul-20 | 5.92 | 680 | 20.4 | 701 | 57.1 |
| Aug-20 | 5.86 | 661 | 39.7 | 701 | 77.1 |
| Sep-20 | 5.91 | 773 | 53.3 | 693 | 98.0 |
| Oct-20 | 6.56 | 647 | 34.1 | 681 | 67.8 |
| Nov-20 | 6.95 | 694 | 57.3 | 751 | 38.2 |
| Dec-20 | 6.85 | 991 | 94.9 | 1,090 | 51.1 |
| Jan-21 | 7.31 | 677 | 16.5 | 694 | 53.9 |
| Feb-21 | 6.79 | 605 | 34.5 | 639 | 47.4 |
| Mar-21 | 6.76 | 738 | 34.8 | 945 | 60.0 |
| Apr-21 | 5.49 | 651 | 7.58 | 667 | 30.2 |
| May-21 | 5.54 | 684 | 5.38 | 688 | 54.2 |
| Jun-21 | 6.15 | 751 | 7.37 | 721 | 90.7 |
| Jul-21 | 5.97 | 779 | 13.3 | 785 | 36.9 |
| Aug-21 | 5.59 | 676 | 9.12 | 747 | 87.7 |
| Sep-21 | 5.56 | 678 | 10.1 | 729 | 72.9 |
| Oct-21 | 14.2 | 850 | 24.4 | 1,130 | 91.1 |
| Nov-21 | 7.54 | 520 | 48.6 | 569 | 52.6 |
| Dec-21 | 25.1 | 1,020 | 60.2 | 1,080 | 89.5 |
| Jan-22 | 9.92 | 619 | 74.1 | 694 | 96.9 |
| Feb-22 | 6.93 | 718 | 25.7 | 744 | 72.3 |
| Mar-22 | 6.89 | 717 | 19.8 | 806 | 36.6 |
| Apr-22 | 6.79 | 654 | 16.8 | 671 | 51.2 |
| May-22 | 5.46 | 640 | 13.8 | 676 | 28.7 |
| Jun-22 | 5.89 | 644 | 10.4 | 735 | 16.3 |
| Jul-22 | 5.66 | 707 | 18.5 | 791 | 31.8 |
| Aug-22 | 5.21 | 596 | 6.85 | 602 | 163 |
| Sep-22 | 5.41 | 641 | 14.1 | 655 | 189 |
| Oct-22 | 5.49 | 572 | 45.4 | 617 | 44.6 |
| **Month, Year** | **Flow**  **mgd** | **Ammonia**  **kg N/day** | **Nitrate + Nitrite**  **kg N/day** | **TIN\***  **kg N/day** | **Total P**  **kg P/day** |
| Nov-22 | 5.56 | 600 | 16.7 | 616 | 38.0 |
| Dec-22 | 10.3 | 479 | 28.6 | 507 | 65.2 |
| Jan-23 | 18.1 | 436 | 144 | 581 | 68.7 |
| Feb-23 | 8.53 | 554 | 36.8 | 591 | 97.4 |
| Mar-23 | 15.5 | 323 | 151 | 474 | 88.7 |
| Apr-23 | 7.57 | 405 | 110 | 515 | 71.8 |
| May-23 | 6.61 | 494 | 71.6 | 565 | 48.5 |
| Jun-23 | 5.90 | 560 | 24.0 | 584 | 92.7 |
| Jul-23 | 6.42 | 647 | 80.1 | 727 | 150 |
| Aug-23 | 5.97 | 565 | 44.2 | 609 | 31.6 |
| Sep-23 | 5.64 | 614 | 39.0 | 653 | 53.7 |
| Oct-23 | 5.88 | 658 | 31.7 | 696 | 48.4 |
| Nov-23 | 5.97 | 479 | 125 | 604 | 36.9 |
| Dec-23 | 8.55 | 516 | 71.1 | 587 | 80.8 |
| Jan-24 | 11.0 | 409 | 197 | 606 | 58.6 |
| Feb-24 | 14.1 | 81.0 | 243 | 324 | 47.6 |
| Mar-24 | 9.79 | 207 | 139 | 346 | 28.9 |
| Apr-24 | 9.95 | 357 | 145 | 502 | 29.3 |
| May-24 | 7.82 | 244 | 174 | 417 | 22.7 |
| Jun-24 | 6.89 | 424 | 106 | 530 | 31.3 |
| Jul-24 | 5.60 | 84.3 | 316 | 400 | 26.8 |
| Aug-24 | 5.81 | 386 | 149 | 535 | 12.2 |
| Sep-24 | 6.59 | 323 | 105 | 428 | 11.7 |
|  |  |  |  |  |  |
| **Dry Season Average** | **7.05** | **670** | **80.9** | **750** | **64.4** |
| **Dry Season**  **Trend \*\*** | **None** | **Down** | **None** | **Down** | **Up** |
| **Wet Season**  **Average** | **10.6** | **679** | **157** | **841** | **74.1** |
| **Average Annual** | **9.12** | **673** | **125** | **802** | **70.1** |

\* The Total Inorganic Nitrogen value is calculated by adding the “Ammonia” and “Nitrate + Nitrite” values.

\*\* Refer to the Section 3.8 in the main body for a description on the statistical analysis.